

**THE EXPERT ESTIMATOR
AND BUSINESS BOOK
FOR PAINTERS**



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The Expert Estimator and Business Book

(SECOND EDITION)

Prepared For the Use of House and Sign Painters,
Paper Hangers, Grainers, Wood Finishers,
Glaziers and Interior Decorators

HOW TO MEASURE AND ESTIMATE
WITH A COMPLETE LIST OF PRICES

BY

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PRICE, ONE DOLLAR AND A HALF



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CONTENTS

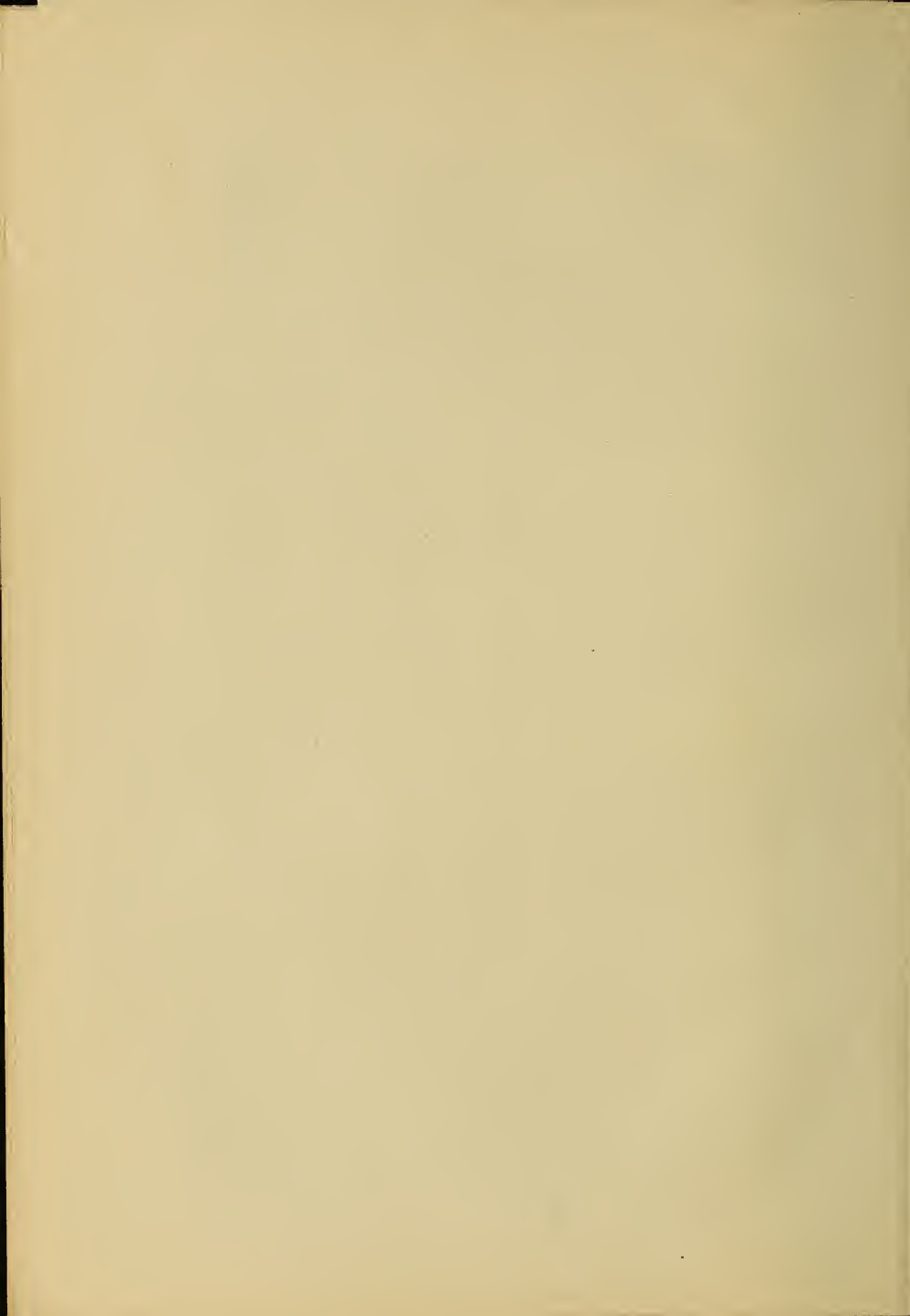
	Page
Estimating by Guess.....	3
Reading the Architect's Specifications.....	4
Tools for Measuring With.....	7
Measuring Work	8
Exterior Measurements.....	10
Interior Measurements.....	13
Taking Off Quantities.....	18
Price List for Painters.....	28
Exterior of New Frame Building—Exterior of Old	
Frame Building—Brick Building—Interior Work—	
Floor Work—Interior Hard Wood Work—Paint-	
ing Stairs.	
Graining	33
Marbling	34
Enamelled Wood Work.....	34
Wall Painting	34
Calcmiming and Water Color Work.....	35
A Comparison of Painters' Prices.....	37
A List of Prices for Paper Hangers.....	37
Special Directions for Paper Hangers' Work.....	38
Paper Hangers' Table of Estimates.....	40
Another Wall Paper Table.....	44
LETTERING AND GENERAL SIGN PAINTING PRICES.....	46
Awning Signs	46
Brass Signs	47
Board Signs	47
Board Signs With Raised Letters.....	48
Board and Galvanized Fascia Signs.....	48
Carved Raised Letters on Fascia Board, with Black	
Smalted Ground	48
Painted Board Signs, Larger Sizes.....	49
" " " Smaller Sizes.....	50
Bulletin Signs	50
Prices on Bill Posting.....	53
Sizes for Bill Boards.....	54
Canvas Signs on Frames.....	55
Campaign Banners	55
Drum Signs	55

	Page
Electric Signs,	56
Glass Signs	56
Gilding on Glass.....	58
Glass Fascia Panels, Interior.....	58
Glass Swing Signs, in Fancy Frames.....	59
Glass Swing Hall Signs, One Side.....	59
Laundry Signs.....	59
Office Lettering, Doors and Windows.....	59
Japanned Tin Signs.....	60
Muslin Signs, Unmounted.....	60
Oil Cloth Signs.....	61
Posters, Hand-Painted.....	62
Real Estate Boards	62
Swing Signs, Plain, Tin or Zinc.....	64
Silk and Satin Lettering.....	64
Show Cards	64
Tin Stair Strips.....	65
Transoms, House Numbers on.....	65
Wall Signs	65
Wagon Lettering	66
Woven Wire Signs.....	66
Window Shade Lettering.....	66

PART SECOND.

A Cost System.....	69
Book-Keeping	70
Up-to-Date Book-Keeping	71
Classified Record of Material, Wages and Expenses.....	76
Filing and Checking Invoices.....	77
Keeping Record of Sales.....	78
Rendering Bills	79
The Matter of Credits.....	80
Trade Discounts	82
Fixed Charges	86
Suggestions on Figuring Costs.....	89
Journeymens' Time Reports.....	91
Estimates and Costs.....	93
The Contract Form	93
The Cost Sheet.....	93
Material Sheet	95
Taking and Filing Orders.....	96
Estimate Form	96
The Invoice or Stock Book.....	97
The Grainer-To-The-Trade.....	98

	Page
Shop Management	99
Business Correspondence.....	104
Final Observations	106
An Index Card System.....	108
Useful Cost Card For the Sign Shop.....	110
Miscellaneous Information	112
What a Painter Can Do in a Given Time—Covering Capacity of Calcimine—Space a Man Will Coat in One Hour—Liquid Bronze—Bronze Powder—White Lead Paint—Painting Over Cement—Covering Capacity of Fillers—Estimates on Painting Bridge Work—Estimating Gasoline Used in Burning Off—What Area Paint Will Cover.	



ESTIMATING BY GUESS

There was one feature of the Ohio Master Painters' Convention at Cedar Point which did not find its way into the published report of the proceedings but which must have furnished a good many of the painters present some food for thought.

This was an "Estimating Contest." The painters who participated were taken to a building, previously unknown to them, and a prize was given to the one making the closest guess on the number of square yards to be painted. The "guess estimates" ranged from 598 yards to 1,033 yards. The actual measurement of the building proved to be 791 yards.

Suppose the low guesser had put in a bid for painting this house. What show would he have stood to make any money? Suppose the high guesser had put in a bid. What show would he have had to get the job?

Another instructive feature of the test was that more than half of the guesses were *under*, instead of over the actual measurements. This goes to show that the man who guesses is more likely to under-guess than over-guess, and if he is particularly anxious to get a job, and knows there is competition, the disposition to cut his figures down is greater than ever.

Furthermore, the painters who took part in this contest were the leading master painters of Ohio, with more than average experience in estimating.

The painter who gets his share of the jobs and has a living profit to show for his work in the end, is the one who never guesses but always takes accurate measurements.—*The Carter Times*.

READING THE ARCHITECT'S SPECIFICATIONS

The architect endeavors to make his specifications full and complete, and yet we will sometimes find that the same millwork specifications from different architects differ as regards the painter's work, owing to the different scales used in the specifications, or the difference in the working out of moulding having the same dimensions, citing these facts as examples. It is therefore advised that the painter become familiar with the prevailing styles of the architect on whose plans he is estimating; it is simply impossible for an architect to show all the little details of mouldings, etc., on say a fourth-inch scale. By being familiar with an architect's style a painter can estimate more accurately or more closely than one not familiar therewith.

It is also advised that the painter ascertain exactly what is expected of him in case he secures the work. There may be work to do that the plans do not show. For instance, there may be storm doors, storm sash, panel backs and boxes for inside blinds, hall and window seats, drawers, shelves, dressers, bath room and store room accessories, etc., all to be done by the painter, yet no hint even of them in the specifications. Or there may be mantels, which are to be placed by the owner of the building, and which may be mentioned in the woodworker's specifications, but not in the painter's. If not finished at the factory, you will be expected to finish them, and no pay for the work. The owner may be good enough to pay you, but this is not sure. Better be sure beforehand. It is a good plan to examine the specifications that are for the other mechanics. The plasterer's measurements, by

the way, will be useful to you, as they concern only the walls and ceilings.

Ascertain all you can about the character of the work, its manner of finish, for, as you know, there are various ways of finishing woodwork, and not knowing what kind of finish is required may mean considerable loss to you. You of course understand all about wood finishing. By estimating on the wrong kind of rubbing or polishing it is easy to lose money. Find out whether you are to furnish the glass or not, or are only to set and glaze it. Ascertain exactly what kinds of materials you are to use, how many coats, see if the woodwork is to be primed before or after being put up. Are the picture mouldings to be painted? Are they to be given the last coat of paint before or after the paper is hung? Is there to be any painting or whitewashing in the cellar? What about the radiators? Who is to finish them? Are any walls to be painted? If so, how many coats, and what kind of paint and finish? Are any walls and ceilings to be kalsomined or decorated in water colors? What is the character of the decorations? What about the cornices, if any? Are they to be done in oil or water color? How many tints or colors for same? Are the shingles to be stained? If so, are they to be dipped or coated on the roof? Or are they to be dipped, then brush-coated on the roof? What brand of stain is to be used? How many colors? How many coats of stain are to be given? Are any to be blended? What brand of varnish is to be used?

These hints should be sufficient to put you on your guard against being made an innocent victim of the architect's omitting to state clearly, precisely, and fully everything the painter will be required to do. Then, take into consideration the character of the work in

other respects, such as the surfaces that are to be coated, especially noting what preparatory work is to be done, for this may vary greatly. It makes a great difference whether the woodwork or the wallwork, or any other surface which you are to treat, has been carefully prepared or not. A badly prepared surface will require more time in fitting it properly for coating than one that is in perfect condition. And a poor surface will also require more material. Note how much knot-killing there may be to do, also the amount of putty work. Then there is the matter of getting at the work. If the work has to be reached from more or less extensive staging, or scaffolding, it will involve greater expense than ordinary work, and must be carefully estimated for time putting up staging or scaffolding and material required. Then do not forget that it must all be taken down, which adds to the expense. If you will be allowed to use scaffolding that other workmen have used, note that also. On church and other public building work there is required considerable scaffolding, and all this ought to be made a separate item. Again, a man will not be able to do as much work at a high altitude as one on the floor or ground, owing mainly to the time taken to get to and from the work, and to get materials. The workman has to be more careful in his movements, to avoid falling, and this lessens his working speed. As a rule, all exterior work requires more time than the same amount of work inside; especially is this true of roof work, where ladders or other staging have to be used. It is very important to consider these items in making up an estimate. On the inside the matter of decorating must be looked into, for there may be much or little, depending upon the character of the scheme.

Reading the Plans.—The plans are drawn to a scale,

by which a fraction of an inch represents a foot, and feet and inches are marked respectively thus: A foot ', and an inch ". By putting in the wrong marks the draughtsman may make a costly error for you, hence watch this point closely. The plans should show every foot of all the work that you are asked to bid on.

TOOLS FOR MEASURING WITH

Tape Measure.—Have a tape measure. To reach very high places you can fasten together fishing or bamboo poles to the required length, and fasten the ring of the tape to the end of the jointed pole. Extend this up to wherever you wish to start the measuring. A hook on the end of the pole will be handy for catching the ring of the tape measure. This device is useful for lofty ceilings, or a tall gable end, and in any place of height where it is not easy of access otherwise. Buy the best tape line, for that will be the cheapest in the end. One that has fine wire woven in its texture is the best, as preventing stretching of the line. A steel tape line will not allow of getting into curves, etc., not being flexible enough. The two-foot rule you always have.

The Note Book.—You should carry with you a small note book, of convenient size, in which to jot down the measurements as you take them, together with any useful memoranda. This book should be ruled so as to give proper space for jotting down the name of part measured, the superficial measurements, with subtractions or additions for openings or extras, as the case may be, measuring and observing everything carefully and jotting all down in the note book. The conversion of the figures into square feet or yards

may be done at home. Be sure of your figures when jotting down, and don't estimate too closely, but give ample leeway, for your own good, as it is better to be a little over rather than under with your figures.

MEASURING WORK

Walls.—All flat surfaces may be placed under this head, for purposes of measurement. Multiply the height by the width, and add the squares of all openings, projecting sills and caps and bay windows being counted with openings. That is, such openings are charged extra. First, the entire surface, including the openings, are counted in addition. This will include all brickwork, clapboarding, plaster or stucco, etc.

Cornices and Copings.—Plain cornices may be measured by multiplying the length by one and one-half times the girth. Increase these figures according to the height of the building and difficulty of getting at the work, and also with regard to the fact of the walls being painted or not. Thus, if the building is three stories high, multiply length of cornice by three times the girth; for buildings up to six stories multiply by four times the girth. For greater heights than these use your judgment, based upon the figures here given. Where the walls are to be painted too, the rate may be lowered, as the scaffolding will do for both. If the cornice is bracketed, dentilled or panelled, multiply the length by two or three times the girth, or even by three or four times, according to the character of the work. Use your judgment. If the cornice alone is to be done, no wall painting, then you may go as much as from four to eight times the girth, according to height of the work, and according to whether the

cornice has dentils or decorations or not. Also, if two or more colors are to be applied to the cornice, this must be taken into account. For a bracketed cornice it is usual to allow one more girth to the regular measurements, and if there are dentils also, allow two girths. These rules apply also to dormer windows and porch cornices, and all similar structures. When the work is extra hazardous, or high, or extra difficult in any way, allow extra measurement to cover increased cost and risk. Allow extra for scaffolding.

The Measurer.—In some cities the associated master painters employ one of their number to do the measuring for them, and he is paid a certain percentage for his work, which is based on the contract price, using the following schedule:

For measuring work up to \$	150.....	5	per cent.
“ “ “	500.....	4	“
“ “ “	1,000.....	3	“
“ “ “	5,000.....	2	“
“ “ over	5,000.....	2	“

It is better for each man to be able to do his own reading and measuring of plans, because it sometimes happens that he will be given the plans by the architect with the stipulation that he is to return them the next morning, and hence while he can do the work that night, it might not be possible to get the official measurer to do the work for him in such short order. Not infrequently you are required to study the plans in the architect's office, not being allowed to take them away.

Have a note book, and jot down your measurements very carefully in that. Note size of glass, size of doors, windows, and every detail. Begin at some point in the plans, and go carefully through them.

A square is a space ten by ten feet, or 100 superficial feet. A square yard contains nine superficial feet. Measure the work by one or the other of these squares, separating the work under different heads, according to its character. As you measure off the work, note down the quantities under the proper head, and when done add up the several columns and point off into squares. The work may be classified about as follows:

Inside Work.—1, 2, 3 and 4 coat work, one color.
Graining and varnishing.
Zinc work and parti-colors.
Hardwood filling and finishing.

And about the same with the outside work, according to its character.

MEASUREMENTS, EXTERIOR

Blinds and Shutters.—Rolling slat blinds, multiply height by three times the girth. Stationary slat blinds, multiply the height by twice the girth. Shutters, multiply the height by twice the girth.

Door Frames.—Plain or with transoms, and not over six inches girth, estimate one foot for girth, and multiply by the length all around. For all over six inches allow double girth. Panelled door frames, allow two and one-half times the girth all around.

Doors.—Batten doors, measure square, and allow an inch to girth for each bead or edge of batten. Panelled doors, multiply the length by twice the width. Measure all door edges double.

Windows.—Window frames, allow one foot girth on all staff beads, and multiply by the length all

around. If pulley stiles are to be oiled, double the staff bead allowance. Dormer window frames, take the height of the frame and get the girth by taking in the part at its greatest girth, across the front, and add measurement of openings. Window sash, ordinary, inside and outside, same method, multiply length by one and one-half times the width. Three times the width for fancy sash.

Iron Gratings, Screens, or Bars of Windows or Doorways.—Measure superficial surface and multiply same by four to six times, according to character of work on same. Grill work will have to be estimated according to its character, etc., using your best judgment as to amount of work on same.

Balustrades.—Turned or ornamental, multiply height of a baluster, including top and bottom rail, by four, and multiply this by length of rail. Same rule for all kinds of ornamental balustrades. For plain, square or round balusters take two and one-half times height of one side of balustrades, top and lower rail added in, multiplied by length of rail.

Columns.—Plain shaft, multiply the length by one and one-half times the girth. Fluted, multiply the length by two times the girth, pressing the tape line into the flutings. Panelled, multiply length by two one one-half times the girth. Capitals, plain, multiply height by three times the girth. Foliated, multiply the height by ten times the girth. Base, multiply the height by twice the girth at the largest part of base.

Entablature.—Same as for cornices, etc., only you will add the under and inner side of architrave to the girth.

Lattice Work.—Painting one side only, multiply height by length, counting height three times. Paint-

ed on both sides, multiply height, five times by length of one side.

Tin Roofs.—Take square measurement, and if to be scraped, double surface. This for ordinary roofs. If difficult to get at or paint, estimate accordingly.

Ceilings.—Square measurement, and if a wooden ceiling, with beaded work, add an inch for each bead. Steel ceilings, according to character of design, etc., estimate for from double to more plain surface, say up to three and one-half times, and still more where the side walls are not to be painted.

Shingles.—Shingle work on towers and other fancy features, get height and multiply by greatest girth. Dipping shingles, estimate 400 square feet per 1000 shingles. This assumes a dip of about ten inches.

Hand Rails, Stairs, Steps or Stringers and Butresses, double superficial measurement.

Floors.—Square measurement.

Chimneys, Verge Boards, Snow Guards, Crestings, and Conductors or Spouts.—Four times the girth by the length.

Cupolas and Domes.—Three times the girth at base, multiplied by the greatest height.

Trellis.—Three times the girth of posts and rails, and multiply the length. Arched trellises, four times the superficial measurement.

Fences.—Picket and board fences, measure on the rail side, adding the girth of the rails, double this, then multiply by the length of the fence, adding circumference of posts to the length. For picking in or tops of pickets, add one-fourth more. Fancy fences, same as for turned balusters. Cast-iron fences, four times the height of one side, multiplied by length, provided the posts are to be painted with the fence. Iron bar or pipe fencing, take the girth of pipe and multiply by

four, making one foot the minimum girth, then multiply by length of fence. If posts are to be painted, then add girth of same to the length of fence.

Spires and Towers.—Plain boarded, measure the greatest girth by doubling the height. Where there is more or less ornamental work you will have to estimate accordingly, using your best judgment in the matter.

Skylights.—Square measurement, multiplied by three or four.

Unclassified Work.—There will always be found more or less work that is not included under any of the heads here given, such as work on store fronts and other commercial or public structures, and including striping, gilding, carved work, etc., and where the rule of measurement can hardly be used, and in all such cases you must depend upon your judgment, as to the amount of material and time it will take to do the same.

MEASURING INTERIOR WORK

The Woodwork.—Begin with the first floor, and measure the doors, one side only, excepting closet doors. Run the tape line into all depressions and count in one edge. Multiply height by width. Measure the frames to the rabbet only, leaving the rest or other side for the next room or hall, as the case may be. Measure window frames same as door frames, also taking in the stool at bottom part. Measure sashes as indicated in exterior measurement. Base-board and dado or wainscoting, these you have to get data for from the carpenters' specifications, as the plans do not indicate height or character. Same with the mantels, you

will have to guess at them, or get some idea of size and character from the architect or owner, that is, if you are to do them. Ascertain what kind of wood is to be used on each floor, and what finish is to be followed, also what materials or make of stock is to be used. I refer to the floors now. The floors may not be finished as the rest of the woodwork; as a rule they never are. As there are many ways of treating a wood floor, whether hard or soft wood, some methods involving considerable labor, while other ways involve comparatively little, it is important to know which way you are expected to finish them.

Now measure the other rooms and parts of the houses or buildings. In houses of the better class there will be pantries, china closets, vestibules, back entries, etc., and all these must be carefully measured. Then there are clothes closets and the bath room, maybe more than one. Measure halls, landings, and stairways. On the latter are the risers, the treads, and the balusters. Measure as you have been advised for other similar work, running into quirks and mouldings, etc., and getting all the surface there is, and a little more in some instances, as where there is more elaborate work than common.

Measuring Interior Painting.—Beginning with the ceiling, is it to be painted in oil or water color paint? In either case, if the wall has to be washed and tinted or whitened, then allow double surface. If to be sized in addition, allow triple. This rule applies to water color painting only. Next we come to the cornice, if any. Same rule for both wooden and plaster. A cornice may contain very much or very little ornamentation, or a medium amount, so that we have to measure according to its character. Say it consists of three or four mouldings, each to be tinted differently,

allow twice the girth. If washed, sized and tinted around the room. If tinted in one color or tint only, allow twice the girth. If washed, sized and tinted one color, allow three times the girth. If the cornice has dentils, then allow three or four times its greatest girth. This rule applies also to stucco or mouldings on the ceiling. Where a cornice girths twelve inches allow eighteen inches. Where the net girth is eighteen inches, allow three feet. Cornices decorated with leaves or other ornaments, allow three feet. Measure center pieces same as cornice, carrying the tape around the outer rim, and charging according to the number of tints, etc. Also, note amount of decorating or ornamentation on center piece.

Wall Painting.—If no particular care is to be exercised in cutting in around it carefully, do not allow for openings. If woodwork is to be painted, then allow for one-half the openings. Staircase walls, add one-third to total measurement, and make no deduction for openings. China closets, triple surface measurement, with no allowance for openings. Where the walls are rough-cast or sandfinished, add one-half to surface measurement, with no allowance for openings. This rule applies to both water color and oil color painting. Where the walls or ceiling are to be stencilled or otherwise decorated you will have to estimate upon your judgment, as no specific rule can be laid down for such decorative work.

Painting the Woodwork.—Any part that will measure up to four inches wide consider as one foot. From six to twelve inches in girth consider as being two feet in girth or width. Where the measurement is from twelve to eighteen inches wide allow three feet. When corner block and plinth are a part of the frame add one foot to the height of each side. If more or less

ornate headers are in use, allow from three to six times the length.

Full-trimmed windows and shutters and inside blinds, measure around the back band, and if the architrave is panelled allow a girth of three feet; otherwise measure as directed for plain painting above. For shutters on full trimmed windows, if folding, allow one foot girth for each face of fold if plain moulded. Panelled shutters, allow eighteen inches for each face of fold. If the shutters have also slats or blinds, allow three times the width of each face of fold.

Sub-Base, or Washboard, when not above ten inches high, allow twelve inches. If above twelve inches in height, allow fifteen inches, in either case including moulding with the board.

Shelving, up to one foot in width, allow one and one-half times the surface measurement. For strips cut in on one edge allow four times the width.

Dado, panelled, allow from two to three times the width. If sheathed with cap and base, allow twice the width.

Stairs are to be measured from top edge of base to extreme edge of stringer for the girth; for the length measure risers and treads, and add one-half the length. Same rule applies in case the stairs are cut down.

Hand Rail and Balusters, measure from the tread up longest baluster, around hand rail and down the tread. Where there are two or three balusters to each tread allow two or three times, as the case may require. Same rule where there is panelled work below the balustrade. Measure newel post in its greatest girth when getting length of stair balustrade. Fancy balustrades allow six times the height of baluster by length.

Sashes, two or more lights, measure square. Twelve

or more lights to the window, add one-half or double, according to character of work on same. Fancy sash, multiply length by three times the width.

Sheathing, plain, allow one and one-half times. Beaded, allow an additional inch for each bead, adding to above measurement.

Mantels, plain, measure square and multiply by three; no allowance for openings. Ornamental mantels, square measurement, multiplied from five to ten times, according to character and amount of work, with no allowance for openings.

Floors, plain, one and one-half times measurement. Hardwood with plain center and border, allow double surface. Parquetry, of any pattern, three to five times surface measurement.

Mouldings, beads and strips of less than four inches wide, and separated from other finish, allow a foot, minimum measurement, for width.

Blinds plain slats, multiply length by three times the girth. Movable slats multiply length by four times the girth. See rule for blinds in exterior painting.

Doors and Window Frames, plain or with transom, not above six inches in girth, allow one foot for the girth, and multiply by length all around. Above six inches, allow double. For panelled frames allow three times the girth by length all around.

Batten doors, measure square with one-half added, and add an inch for each bead to the width measurement. Panelled doors, multiply length by twice the width. Measure edges double.

Columns and pilasters, measure as directed for same in exterior painting, which see. Pilasters are measured two-thirds of the column measurement.

Scaffolding for the work must be estimated, for either inside or outside work. There will be a proper

charge for any staging requiring the services of a carpenter, or that is not the regular staging of the painter. What this shall be must rest with the painter's judgment and his actual knowledge of its cost to him.

TAKING OFF QUANTITIES

By this is meant measuring the work and writing it down in figures, etc. The following description of a method of doing this important and rather tedious work comes from a successful master painter, and may be accepted as correct and very useful. The writer uses a form of estimate sheet given in this connection. He has been using this form for the past ten years, and finds it better than the usual book, for the reason that it is always on file in the office, where it forms one of the records, and can be consulted at any time. While it is "live matter" the sheets are kept in small pigeon holes, arranged in alphabetical order. When the work is done, or when it is found that some one else is doing the work, the sheet is transferred to a case such as is used for card records.

If the glass and glazing are part of the painter's contract, these are usually taken off first. While a tedious matter to pick out, especially if there are three or four kinds, there should be no difficulty in getting this quite correct, when working on the plans of reasonably good architects. Often the correct sizes are figured on the plans; or if the outside openings are figured, the size of glass can be gotten from these figures by deducting the width of sash and thickness of frames, which should be mentioned in the specifications; or if there is no figuring on the plans, the measuring of the scale drawings will have to be re-

sorted to, picking out one kind of glass at a time and setting it down in its order, making due allowance for the shrinkage of the blue prints. If you are figuring from them, always figure plenty for glass; it is cold cash out of your pocket if you don't; it's not like a part that you can work hard and get out on it.

Never guess at the glass on a job; you may be able to hit it pretty close, but it's a start in the wrong direction. The habit will grow on you like gambling or drinking, and the first thing you know you will be guessing at the glazing and painting of a whole house. In some cases there are short cuts that can be taken with perfect safety, without measuring every light of glass accurately. For illustration, a dwelling where all the glass is D. S. blown glass, there may be quite a number of different sizes, all within the same bracket, like 32x32 to 32x34; 30x32 to 30x38; 28x36 to 28x40; are all listed at the same price of \$10.31; any of these and all the intermediate sizes may be set down at any of the above figures and the result would be the same for the purpose of estimating. The glass lists may be familiarized with this end in view and much time saved. After glass has been all properly listed, the cost of the same must be ascertained, to which a percentage must be added for risk or breakage.

For computing the price of setting or glazing of miscellaneous sizes of double strength, or plate glass, the percentage basis is the easiest and most accurate way, the per cent. varying according to character of work and kind of glass. For ornamental glass, that is figured by the square foot, a price per foot may be added. In factory glazing, where there are thousands of lights of one size, the glazing may be reckoned by the light, due consideration being given to bedding, if called for, size of munting and general conditions.

Estimating factory and mill building jobs of painting, as well as the glazing by the light, where glass is of a uniform size and windows irregular, is often done. The outside doors and windows are all the house painter is usually called upon to do; the doors will, of course, be figured by square measure; the windows and transoms by the number of lights contained in them. For example, all the windows, transoms, monitor windows, etc., are made up of lights, 10 by 14; the cost of the glass is taken and enough is added to cover glazing, and also the painting of sash and window frames. From this basis all work is computed by counting the number of lights in the transoms, windows, etc., and then multiplying by the price.

The painter has only to do with the surfaces of the completed building, whether it be a simple or elaborate dwelling, school, church, factory, or warehouse; and to get the surface to be covered, accurately computed and set down in square feet or yards or units equal to such, in a manner so that a reasonably correct average of the cost and selling price of a given number of coats on the building can be ascertained. Some may find objection to the above elastic term of reasonably correct, but the facts, as I find them in practice, impel me to make this qualification; but it is remarkable how close the bids of conservative, competitive bidders of the better class run on average work. It may be stated that the measuring of surfaces on plans is a mere mathematical problem and should be absolutely correct. This would be true if all surfaces were uniformly the same, but the time consumed in finishing a square yard of surface on a plain solid mould door is much less than the time consumed on the same amount of surface on a bracketed and dentilled cornice, with enriched mouldings. If all the surfaces of each

member were accurately computed, the price per yard would have to be very much more owing to the difference in time consumed in doing the more completed work. So the estimator of painting has to apply his knowledge and judgment as well as his rule. and has thus resorted to methods that facilitate the work; such as doubling the surface of plain mouldings, trebling and quadrupling the intricate work, so that when the quantities are given, it is not the mathematically correct surface quantity, but it is the relative cost quantity.

Whatever method is used, the measurement of the surface must be this basis, and it is only a matter of getting at it in a manner that will consume the least time; the figuring outside of frame house wall surface and floors being a simple square measurement, with the usual addition for parts that would add to the expense of doing work. In the figuring of dwellings, such as brick, etc., where the surface is pretty well cut up, the lineal and unit method is sometimes used. I have known estimators, whose figures run very regular, to use this method.

I will endeavor to explain from an imaginary brick dwelling, figuring from the print, as we would come to the different parts.

Taking up the outside, starting with the roof, if it be slate, it would not be painted, but the tin work of gutters, ridge rolls and valleys would be. The price of these must be high compared with an entire tin roof and may be taken as so many lineal feet of ridge roll, at such a price per lineal foot, and likewise with gutter and valleys. The next being the cornice, the girth over all should be taken; then the character of the work be considered, whether it is bracketed or plain, and the estimate on the surface equivalent made and price

per lineal foot fixed; then the lineal measurement taken and set down ready for multiplication by the fixed price. The cornices on dormers and porches can be estimated in like manner, the price being according to similar calculation. The outside windows are often taken off with the outside work; the price being added to cover same; it does not matter which way you do it so you are sure to get it in, but always do it the same. Regular habits often prevent oversights.

It is a common practice to figure the outside of windows by the piece. If a man knows anything at all about estimating he knows how many 3 by 6 feet windows the average man will be able to run in a day and the amount of paint it will take when they are in place.

From this a basis of cost for the setting of the unit price can be fixed, and should be increased or decreased according to the area of the window, making the minimum charge for a double-hung window not far below that of the 3 by 6 window, as a man can run almost as many of this size as the smaller one.

THE ESTIMATING OF PORCHES.—The most correct way to estimate porches is to figure all the surfaces on all the parts to be painted, girthing all posts, cornices, etc., according to rules of the book of measurements, and on porches of heavy construction this is the only safe method. On the lighter-constructed porches, with lattice balustrades and spindlets, it should not be necessary for an estimator to go through the entire process every time such a porch is to be figured, but the exact amount of surface to a square foot of floor space and the cost of doing same, by repeated trials, should be known in order to simplify the work and save time.

Figuring of shutters is like windows, done by the pair, price based on surface measurement, on all sides

doubled; or, if rolling blinds, trebled. Estimators usually know the cost of the average window without figuring all sizes, and apply price directly per pair. The interior work, like the outside work, must be based on surface measurements. But a door of a given size once figured and the result remembered, need not be figured again on the next job. When the doors of the same size are given, the next step is the figuring of the price of the same at so much per square yard or foot, and the price is also remembered. Thus the estimator forsakes all the intermediate steps and uses the item and the price of the computed unit, and the advice of the fathers is forsaken and the unit system established. The unit usually taken is a single side of a door, and I have known estimators who get all their work down in sides, at so much per, even to picture moldings and wainscoting. I believe this is carrying the time-saving element rather too far.

We will take an example, and, for the sake of convenience, say the work is all grained and varnished throughout the house and the same class of work. The plans show that on the first floor the doors are 2 feet 10 inches by 7 feet, with 6-inch finish; to this size of door, 25 to 27 square feet are reckoned as a side; say 25, and we will set an arbitrary price of 54 cents a square yard. This would make one side of a door; \$1.50; as the design of the work in the same apartments must be of the like character, the unit price is applied and is usually computed as follows: Each side of door, one side; each two sides of frame, one side; inside of window, two sides; inside shutters, additional to windows four to six sides; three square yards of wainscoting, one side; one room of base, one side; one room of picture mould, one side; plain mantels, four sides, etc.; thus on each lower door in

pantry fitting one side. Each upper door in pantry fitting two sides, through, all parts being reckoned as far as possible in sides.

Now going to second floor, the ceilings, usually lower, the work is not so high; say 2-10 by 6-6 door. This would figure \$1.40 per side, or \$4.20 for a door and frame on both sides; for any door that has a transom above it over 18 inches wide, add one side. While those who have been used to reducing all quantities to square yards may criticise this method as being less accurate, yet an estimator of good judgment can make very regular prices on dwelling work. I use the unit system for doors and windows, but figure wainscoat by the square foot; picture mold and base by lineal measure, and make a special measurement and calculation for the odd items.

I have here the items of a job of a competitor of mine of whom I asked, among many others, his way of procedure, and appears to be as follows: A general view is first taken of the plan to ascertain character of job, then specifications are taken up. The painting specifications are read over carefully and an abridged copy of it written on top of the estimate sheet. Then the specification of other trades should be read over and notes made on top of estimating sheet; then another study of the plans, until they are thoroughly understood. In this house the kitchen, pantry, back stair hall, back room, second story and attic are yellow pine, filled shellacked two coats of varnish. The work of attic taken off first, then second floor, back stair, kitchen and pantries; all that class of work together. Then cellar and laundry work, three coats of paint. This is all taken next, figured, and amounts carried out. Balance of second story, seven coats of white work, last coats, enamel, left bright.

The windows are taken first, doors next, base, picture mould, then mantels, closet work seats and extras. The balance of first floor is taken off in rooms, hall white and rubbed; music room white, and rubbed; library and living room, oak finished, English oak shellacked and waxed, and all work figured by square foot, except French doors and windows. They are estimated by the piece. Dining room, mahogany stained and filled, shellaced, three coats of varnish and rubbed down with pumice stone and oil to a satin finish; yellow pine floors and oak floors next. This with the items of outside and glass would be a complete set of items.

ESTIMATE SHEET.

Name..... Residence.....

Location Date

Architect.....

Glazing—

Basement glass D. S. A. A.

Glass above basement plate.

Leaded glass not included in this contract.

Furnish plate glass mirrors where shown.

Painting—

1. Outside woodwork 3 coats paint.
2. Outside metal work 2 coats paint.
3. Back of all finish and wainscoting painted.
4. Woodwork in kitchen. Rear Hall and Pantry will be yellow pine and together with chestnut in attic hall to be finished natural with one coat of shellac and two coats varnish.
5. Remainder of the house poplar, finished in enamel, viz.: shellac, two (2) coats lead, one coat of zinc and three coats of enamel.
6. Doors in second floor bedrooms, also woodwork of living room, and newels and hand rail of stairs all to be birch, stained three (3) coats of varnish and rubbed in water and oiled.

7. Chestnut of third story, except hall, stained and waxed.
 8. Oak floors stained, filled, shellaced, two (2) coats floor varnish and rubbed, additional coat of varnish on first story floors.
- Yellow pine floors filled and two (2) coats varnish.

Polished Plate Glass—

96	Lights	8x12
2	"	30x40
168	"	10x16
114	"	9x16
16	"	18x20
13	"	14x18
24	"	30x32
6	"	8x30
2	"	22x28
12	"	10x10
20	"	12x16
4	"	16x18
80	"	10x18

Amount forward,	0000.00
Amount forward,	0000.60

Window Glass D. S. A. A.—

21	Lights	10x20
15	"	9x18
9	"	10x18

 00.00
Polished Plate Glass Mirrors—

5	Mirrors	24x72
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 00.00

Exact cost of all glass,	0000.00
Glazing % Profit %	000.00

 0000.00
Basement—

- 10 Windows.
- 10 Doors and frames.
- 1 Flight stairs plain.
- 1 W. closet inclosure.

Kitchen, Pantry and 3rd Floor—

- 12 Windows, 5-in finish.
- 2 Flights rear stairs.

- 10 Doors and frames.
- 235 S. yards Y. P. floors.
- 22 Ft. linen cases and doors.
- 30 Ft. pantry cases and doors.
- 400 Ft. base.

Remainder of 1st and 2nd Stories—

- 36 Windows 6-in. finish.
- 1 Flight main stairs.
- 44 Doors and frames.
- 2 China cases each 4x6 ft.
- 10 Ft. bookcases, 4½ ft. high.
- 1000 Ft. base.
- 8 Mantels.
- 26 S. yards panel in vestibule.
- 365 S. yards oak floors.
- 40 S. yards ceiling beams.
- 210 Ft. interior wood cornice-girth 16-in.
- 70 S. yards panel wainscoting.
- Back painting.

Outside Painting—

- 210 Ft. rafter cornice, girth 5 ft.

Brick porch 13x16..	{	Ceiling	—	—
		Cornice	{	—
		Floor		

All painting		0000.00
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 0000.00

Estimate \$0000.00

We will now suppose that we have our quantities all off quite correct, and each class of work by itself. Either in square yards or divided up into sides, a master painter can make just as bad mistakes setting his prices as any place I know of; each locality has its own prices and should be based on cost of material, price of labor in that locality, and a profit. And please don't forget the last item, and get it just right, for after all its said and done good judgment is the main factor.

PAINTERS' PRICE LIST

For United States and Canada.

FRAME BUILDING, Exterior, New:

<i>Description of Work.</i>	<i>Rate per</i>	
	<i>Sq. Ft.</i>	<i>Sq. Yd.</i>
Priming, general woodwork.....	\$	.10
" siding and putty.....		.12
" putty, and second coat.....		.16
" putty, second and third coats.....		.22

For all other descriptions of work, see rates for old work, as follows:

OLD WORK, Frame, Exterior:

One coat paint on siding.....	.12
Square-up bay window, old, dry siding, one coat	.12
two coats	.18
three coats	.22
The bay windows include cornice and window frames.	
Plain porch, without rail, including roof, floor, and lattice work, one coat.....	\$.36
two coats.....	.55
three coats.....	.80
Porch with railing, one coat.....	.46
two coats.....	.76
three coats.....	1.00
Lattice work on back porch, two coats, two sides	.40
used as screen, three coats.....	.55
Five-foot blinds, per pair, one coat.....	.43
two coats.....	.65
three coats.....	.85
Eight-foot blinds, three panels, one coat.....	.66
two coats.....	1.00
three coats.....	1.30
Dormer, one window, one coat.....	1.33
two coats.....	2.00
Dormer, two windows, three coats.....	3.00
Small chimney, one coat.....	1.33
two coats.....	2.00
three coats.....	2.75
Large chimney, one coat.....	2.00

<i>Description of Work.</i>	<i>Rate per</i>	
	<i>Sq. Ft.</i>	<i>Sq. Yd.</i>
two coats.....		3.00
three coats.....		4.00
Tin roof, one coat.....	.01	
two coats.....	.01 1/2	
three coats.....	.02	
Gutters and valleys, one coat, per running foot..		.02
two coats, per running foot..		.03
three coats, per running foot..		.05
Sloping tin roofs, from one-third pitch upward, add something additional; the Denver Association list gives 50c. per roof, which is rather indefinite. Be governed by the increased difficulty in the painting of such roof. Estimates are based on the use of usual roof paints, properly applied.		
Coping on roof, charge same as for gutters.		
Painting shingle roof or gables, one coat.....		.13
two coats.....		.20
three coats.....		.30
Painting old, dry roof, add 50c. per square yard, for first coat.		
Picket fence, three feet high, one coat.....	.10	
two coats.....	.15	
three coats.....	.20	
Picket fence, four feet high, one coat.....	.12	
two coats.....	.18	
three coats.....	.25	
Iron fence, one coat, plain.....	.06	
two coats, plain.....	.10	
one coat, fancy.....	.08	
two coats, fancy.....	.12	
three coats, fancy.....	.15	
Outside cellar doors, per coat.....		1.00
Shingle staining, dipped, per 1000.....		3.50
dipped and brush-coated on roof		4.00

BRICK BUILDING:

Plain cornice, one coat.....	.08
two coats.....	.13
three coats.....	.16

<i>Description of Work.</i>	<i>Rate per Sq. Ft.</i>
Bracket cornice, one coat.....	.10
two coats.....	.15
three coats.....	.20
Dentil cornice with brackets, one coat.....	.12
two coats.....	.18
three coats.....	.25
Small window frames, 4 to 12 light sash—	
one coat each	.25
two coats each	.35
three coats each	.50
Large window frames, 4 to 12 light sash—	
one coat each	.35
two coats each	.60
three coats each	.65
Count windows in bays same as others.	
Painting unpainted brickwork, one coat.....	.15
three coats.....	.30
Painting old painted brickwork, one coat.....	.13
two coats.....	.25
three coats.....	.35
Pencilling brickwork.....	.15
The foregoing includes cornices and frames, all being pressed together. Plastered work on brick or stone same as plain brickwork.	
Sanding on last coat of paint.....	.10
One coat of paint on new or old sanded work...	.15
Second coat on above.....	.15
Burning off old paint, charge for time and material.	
Glazing sash, up to 10x14, per light, 5c to 6c.	
10x16, per light, 7c to 9c.	
14x24, per light, 10c to 12c.	
18x25, per light, 15c to 18c.	
24x30, per light, 20c to 30c.	
36x40, per light, 35c to 40c.	
Glazing old work, charge about 40 per cent. more; or twice the retail price of glass; or, time and material.	

INTERIOR WORK:

Painting doors, two sides, one coat, one shade, per door	.84
two coats, one shade, per door	1.25
one coat, two shades, per door	1.00
two coats, two shades, per door	1.50
three coats, one shade, per door	1.75
three coats, two shades, per door	2.00
Small window casing and sash, one coat, one shade....	.47
two coats, one shade....	.70
one coat, two shades....	.60
two coats, two shades....	.90
Large window casing and sash, one coat, one shade....	.60
two coats, one shade....	.90
one coat, two shades....	.74
two coats, two shades....	1.10
Sandpapering and puttying natural finish or stained work, per square yard.....	.10

FLOOR WORK:

Oak, paste-filled, one coat varnish, rubbed with pumice stone and oil, per sq. yd.....	.35
Same, with two coats of varnish.....	.50
Parquetry floor, paste-filled, one coat varnish, rubbed and puttied .....	.40
Same, with two coats of varnish.....	.60
Oak, paste-filled, one coat of wax.....	.30
Same, with two coats of wax.....	.45
Yellow pine, one coat liquid filler and coat of varnish..	.25
Same, but with two coats of varnish.....	.35
Yellow pine, liquid filled, one coat of varnish, polished by rubbing.....	.27
Same, with two coats of varnish.....	.40
One coat of varnish on new oak or yellow pine.....	.12
Second and third coat on same, each.....	.10
One coat of linseed oil.....	.08
Two coats linseed oil.....	.12
Waxing and polishing floor, one coat, per sq. yd.....	.15
Varnishing blinds, one coat, per pair.....	.27
two coats, per pair.....	.40
three coats, per pair.....	.60
Painting inside blinds, two folds, one coat per pair....	.40
two coats per pair....	.60
three coats, per pair....	.75

One coat high-grade varnish or shellac, per sq. yd. ....	.15
One coat ordinary varnish or shellac, per sq. yd. ....	.10
Charge according to price of varnish used. Some add as much as ten cents per yard extra for best.	
Oiling or staining natural wood. ....	.10
For best rubbed finish on work having dentilled, carved, or panelled work, add per yard extra. ....	.60
For special piano finish or extra fine work charge for time and material.	
Ordinary hardwood trim, liquid filled and two coats of hard oil, rubbed. ....	.75
Each additional coat of varnish or shellac. ....	.15
Liquid filled, one coat hard oil, one coat wax. ....	.45
Each additional coat of wax. ....	.10
Wiping off oiled floors, with cloths, add per yard extra. ....	.05
Wainscoting, one coat, per square yard. ....	.12
two coats, per square yard. ....	.18
three coats, per square yard. ....	.25
One coat each of liquid filler and varnish, per sq. yd. ....	.18
One coat liquid filler and two coats varnish, per sq. yd. ....	.25
One coat liquid filler, one coat varnish, rubbed with pumice stone and water or oil, per sq. yd. ....	.35
One coat liquid filler and one coat varnish, two sides of door and frame, rubbed with pumice.	1.35
Same, but with two coats of varnish.	2.00
One coat liquid filler and one coat or varnish, two sides of door and frame.	1.00
Same, with two coats of varnish.	2.00
One coat varnish and liquid filler, one side. ....	.50
Window casings and sash, filled and varnished. ....	.70
Same, with two coats varnish.	1.00
two coats, per running foot. ....	.01 1/2
three coats, per running foot. ....	.02
This is for filler, varnish or paint.	
Book cases, 5 feet high, filled and varnished, inside and outside, per sq. ft. ....	.40
Same, with two coats of varnish. ....	.60
Same, rubbed with pumice and oil, per sq. ft. ....	.75
Same, paste filled, three coats varnish, rubbed.	1.00
Painting box stairs, one coat.	1.75
two coats.	2.50
three coats.	3.50

Painting open stairs, with rail, one coat.....	4.00
two coats	6.00
three coats.....	7.50
Box stairs, liquid filled and one coat varnish.....	2.00
two coats varnish.....	2.75
Open stairs, with rail, liquid filled and two coats varnish	7.00
Same, with one coat of varnish only.....	4.50
Open stairs, paste filled, one coat varnish.....	8.00
Same, with two coats of varnish.....	12.00
Same, rubbed with pumice stone and oil.....	15.00
One-platform stairs, filled, with one coat varnish.....	11.00
Same, with two coats of varnish.....	17.00
Same, rubbed with pumice stone and oil.....	20.00
Filling open-grain wood with paste filler, per yard.....	.25
Filling close-grain wood, liquid filler or shellac.....	.10
First coat of varnish on same.....	.10
Second or third coat varnish, each, per sq. yd.....	.10
Hairing-off or sandpapering between coats, per sq. yd..	.05
Rubbing to ordinary dead finish.....	.10
Rub to first-class egg-shell finish.....	.25
Painting radiators, per loop, one coat.....	.10
Bronzing, ordinary, per loop one coat.....	.10
High-lighting same, per loop.....	.05

GRAINING:

The following list is that used by the Grainers' Association of Boston, Mass. The prices noted may be altered to suit local conditions:

For all ordinary work: kitchen, not over five	
door sides and ordinary sheathing, according to the quality of the work, from.....	\$3.50 upwards
Extra door sides and casings.....	.50 each
Pantry and closet work extra.	
No single room less than.....	3.00
Double front doors, from.....	2.00 upwards
Single front doors, from.....	1.00 upwards
Ordinary work per yard.....	.15 to .30
Extra, matching hard wood, etc.....	.20 to .40
Floors and ceilings, per sq. ft.....	.03½

Store and bar-room work, and all places difficult of access, involving delay, extra, 20 to 30 per cent.

Fine work, as rare woods, with double graining, special prices.

Board and carfare charged on all work out of town.

MARBLING:

There is very little marbling done now, and where such work is taken prices must be based upon the prevailing rates of wages for extra fine work. It will be found best to charge per day or hour, though the following table, which is not based upon any table in use, but is merely approximate to actual cost of doing such work, will be found useful:

Ordinary sienna and black and gold marbling, per sq. ft.	.10
Egyptian and dove marbling, ordinary work.....	.15
Italian pink and malachite marbling, ordinary.....	.15
Rouge royal, granite, etc., ordinary.....	.10

For more elaborate work than the above list provides for, an additional charge may be made. Prices must of course be governed by the skill of the workman, and where an expert may charge almost any price and get it, a less skilful man will have to be content with much less.

ENAMELLING WOODWORK:

Three coats of paint, each sandpapered, and one coat enamel paint, per sq. yd.....	.75
Same, but with four ground coats of paint.....	.90
Same, but with five ground coats paint.....	1.00
Each additional coat of enamel, per sq. yd.....	.20
Rubbed to dull finish, add per sq. yd.....	.40
Rubbed to piano finish, add per sq. yd.....	.80

WALL PAINTING:

Sizing and one coat of paint, per sq. yd.....	.15
Each additional coat, per yard.....	.10
Stippling on last coat, add per yard.....	.05
Stippling on last two coats, per yard, add.....	.10
Painting burlaps or other woven fabrics, per yard....	.15
Wiping off or ivory effect, plain surface, per yard....	.25

Same, done in relief work, such as ornamental frieze, center piece, flatted color, etc., caps extra, per sq. ft.	.25
Cornices, mouldings, etc., up to 9-inch girth, per running foot.....	.25
Same, 9 to 18 inches.....	.40
Same, 15 to 30 inches, including grounding.....	.60
Filling, painting, enamelling and gilding lines on baths, from	\$5.00 to 10.00

CALCIMINING AND WATER COLOR WORK:

New plaster, smooth walls, white, light blue, or buff, per square of 100 feet.....	.75
Rough or sand-finished walls, per square.....	1.00
Ten or more squares, 25c. or less per square. ....	....
Hard oiling and tinting, smooth plaster, ordinary tints, per square	1.25
Ten or more squares, per square.....	1.00
Rough or sand-finished plaster, per square.....	2.00
Ten or more squares, per square.....	1.50
Sizing and tinting sand-finished walls, per square.....	1.25
Ordinary patching of plaster and preparing same, to be included in above rates.	

Strong colors to be charged extra, using your own judgment as to values.

All cutting out of cracks and extraordinary preparation of plaster to be charged for at the rate of so much per hour, and added to the above prices.

Scraping off old kalsomine or removing paper to be charged for at so much per hour.

Water color, plain surface, per sq. yd.....	.10
Tinting walls and ceiling, per yard.....	.12
Cornice, per foot, run one color, nor more than 12-inch girth, per yard.....	.05
Each additional color add per foot run, per yard.....	.02
Center piece, one tint, each.....	.50c. to 1.50
If picked out in colors, each.....	\$1.00 to 3.00
For cornice enrichments double above rates.	

One coat of hard-oil on walls and ceiling, per yard....	.08
For such colors as chrome green and yellow, ultramarine blue, carmine, lakes, vermillions, etc., per foot, add .....	.02

<i>Price in the Vicinity of</i>	100 Sq. <i>Feet</i> 1 Coat	100 Sq. <i>Feet</i> 2 Coats	100 Sq. <i>Feet</i> 3 Coats
Boston	\$1.10		
Buffalo	1.00		
Chicago..... {	.75	\$1.55	
	.80	1.65	
	1.00	2.00	
Cincinnati .....	.65		
Cleveland..... {	.80	1.75	
	.85	2.00	
Philadelphia .....	.70		
<i>Price in the Vicinity of</i>	100 Sq. <i>Feet</i> 1 Coat	100 Sq. <i>Feet</i> 2 Coats	100 Sq. <i>Feet</i> 3 Coats
Pittsburgh..... {	.65	1.50	\$1.90
	.70	1.50	
	.80	1.80	
	1.00		
	1.10		
	1.25		
St. Louis..... {	.70	1.55	2.20
	.65	1.65	2.30
	.80	1.50	2.50
	.88	1.65	2.65

In this table of prices, where the price of one coat only is given, it may be understood as an average price per coat, for one, two or three coats.

PRICE LIST FOR PAPER HANGERS.

One-edge work, per roll, 20c. paper.....	.20
Two-edge work, per roll, 20c. paper.....	.25
Ingrain, wire edge.....	.25
Ingrain, butt edge.....	.30
Wire edge, 25c. to 50c. goods.....	.30
Butt edge, 25c. to 50c. goods.....	.35
Pressed papers, per roll.....	.50c. to 1.00
Burlaps, fabrics and lincrustas, per yard.....	10c. to .30
Paper, machine trimmed, per double roll.....	.30

Straight-edge or knife-trimmed, double roll.....	.40
Varnished tile, per double roll.....	.50
Felts, per double roll.....	.60
Hanging silk fibres, per double roll.....	.50
Two-thirds work, add, per roll.....	.10
Crown work, per crown, minimum price.....	.10
Crown work, per yard.....	.20
Panelling, charge by hour.	
Cutting and hanging marble, in blocks, size 42 by 21, per roll .....	.75
Same, 21 by 11, per roll.....	1.00
Same, lining out, sizing, and one coat of varnish.....	.50
Burlaps, dyed, stained or colored, per yard.....	.25
Japanese papers, Sanitas or Oil Cloths, by the hour.	
Block papers or equivalents, per roll.....	.50c. to 1.00
Hanging dado, ordinary upright lengths, double prices of walls.	
Hanging prepared muslin, per yard.....	.10c. to .20
BORDERS:	
Ordinary, up to 18 inches wide, per yard.....	.5c. to .10
Ingrains, same rate as above.	
These prices are for papers costing from 25c to 50c.	
Cheaper papers 3c. per yard.	
Borders are sometimes counted same as papers, 16 yards to double roll, and charged at that rate.	
Sizing smooth walls, per double roll .....	.05
Removing old paper, charge by the hour.	
Hanging plate rail, up to 3 inches, per foot.....	.10
For wider plate rail, in above proportion.	
Hanging picture moulding, up to 1½ inch, per foot.....	.03
Wide mouldings in proportion.	
Hanging on walls with plate rail, extra per piece.....	.05
Poster, per piece.....	.01

SPECIAL DIRECTIONS

It is not well to give estimates on papering, excepting by roll, square yard, or running foot.

It is not safe to figure on more than 7 yards to the roll.

Allow for all large openings.

All stripping, stopping, washing off and cleaning to be charged extra.

Some deduct for all openings above base-board, while others deduct one-half of a single roll for each door or window. No deduction is usually made for the border, which will allow for waste in matching, trimming, etc. In our judgment, based upon experience, where ordinary paper is hung, it is best to measure the work as solid, making no deductions, unless the openings are more than ordinarily large, as when there are folding doors, very large windows, and high doors or low ceiling. By this method all losses from trimming and matching are compensated for, and the amount of paper estimated to cover the room will be found very near what is required, with very little left over.

Nearly all wall paper is put up in double rolls, each single roll being the basis for price unless otherwise stated. A single roll is usually 7 yards long and eighteen inches wide, after trimming. Ingrains come in three-roll bolts, 30 inches wide, 8 yards to the single roll, or 24 yards to the triple roll. Crepes and plain duplex papers come the same as ingrains. A single roll will cover 33 square feet. Twenty-inch paper comes in bolts of two rolls, or single pieces. It has eight yards to the single roll, and trims to 18 inches. It will cover 30 square feet.

Measuring a Room.—To get the amount of paper necessary to hang a room, there are several methods, and also tables. It is simply a matter of getting the amount of surface to be covered, and know the number of square feet that a roll of paper will cover.

To measure a room, run a tape line around half way, if the room is of regular formation; otherwise, in

order to get angles or inequalities run the line all around.

Some measure by means of a bolt of paper, getting the number of widths around the room. Many can tell by a scrutiny of room just how much paper it will take to do it. There is a device made for measuring with, by which you run the wheeled instrument around the room, and it records the number of feet. Another tool will give the number of rolls required, once you know the size of the room. Set this device to correspond with the dimensions of the room, and an indicator will tell the amount of paper required.

Where there is a rather high base-board, or wide frieze, or a dado, suitable deductions must be made. Also where there are openings more than ordinary. Also where costly paper is being used the estimate may be made closer.

Always allow for a little more paper than is actually needed for a job, especially if distant from the source of supply.

A TABLE OF ESTIMATES

In order to save time and tedious figuring, we have here a table of estimates that will give the required amount of paper for rooms of various sizes, as listed, and the allowances made are ample for waste in matching, etc. The estimates are based on the single roll of eight yards, and where wider paper is used, allowance will have to be made. For instance, if 20-inch paper, then add one-ninth more to the estimate, as the wider paper will cover two inches more to the strip than the ordinary width of 18 inches. And so with still wider papers, like ingrain. An ingrain of 30

inches contains two-thirds more width than ordinary paper. Again, remember that some papers, like in-grain, are put up in triple rolls, that is, three single rolls to the bolt.

ROLLS OF PAPER FOR ROOMS

<i>Running ft. around side wall.</i>	<i>8 ft.</i>	<i>9 ft.</i>	<i>Height of Room.</i>				<i>13 ft.</i>	<i>14 ft.</i>	<i>Rolls for Ceiling</i>
			<i>10 ft.</i>	<i>11 ft.</i>	<i>12 ft.</i>				
18.....	5	5	6	6	7	8	8	.....	1
20.....	5	6	7	7	8	8	9	.....	1
22.....	6	6	7	8	8	9	10	.....	1
24.....	6	7	8	8	8	10	11	.....	1
26.....	7	8	8	9	10	11	12	.....	1
28.....	7	8	9	10	11	11	12	.....	2
30.....	8	9	10	10	11	12	13	.....	2
32.....	8	9	10	11	12	13	14	.....	2
34.....	9	10	11	12	13	14	15	.....	2
36.....	9	10	11	12	13	14	16	.....	2
38.....	10	11	12	13	14	16	17	.....	2
40.....	10	11	12	14	15	16	17	.....	2
42.....	11	12	13	14	16	17	18	.....	2
44.....	11	12	14	15	16	18	19	.....	2
46.....	12	13	14	16	17	19	20	.....	2
48.....	12	13	15	16	18	19	21	.....	2
50.....	13	14	16	17	19	21	22	.....	3
52.....	13	15	16	18	19	21	22	.....	3
54.....	14	15	17	18	20	22	23	.....	3
56.....	14	16	17	19	21	22	24	.....	3
58.....	15	16	18	20	22	24	25	.....	3
60.....	15	17	19	20	22	24	26	.....	3
62.....	15	17	19	21	23	25	26	.....	3
64.....	16	18	20	22	24	26	28	.....	3
66.....	16	18	20	22	25	27	29	.....	3
68.....	17	19	21	23	25	27	29	.....	3
70.....	17	20	22	24	26	28	30	.....	3
72.....	18	20	22	24	27	29	31	.....	4
74.....	18	21	23	25	27	30	31	.....	4
76.....	19	21	23	26	28	30	32	.....	4
78.....	19	22	24	26	29	31	33	.....	4
80.....	20	22	25	27	30	32	34	.....	4
82.....	20	23	25	28	30	33	35	.....	4
84.....	21	23	26	28	31	33	36	.....	4
86.....	21	24	27	29	32	35	37	.....	4
88.....	22	24	27	30	32	35	38	.....	4
90.....	22	25	28	30	33	36	39	.....	6
92.....	23	26	28	31	34	37	39	.....	8

<i>Running ft. around side wall.</i>	<i>8 ft.</i>	<i>9 ft.</i>	<i>Height of Room.</i>					<i>14 ft.</i>	<i>Rolls for Ceiling</i>
			<i>10 ft.</i>	<i>11 ft.</i>	<i>12 ft.</i>	<i>13 ft.</i>			
94.....	23	26	29	32	35	38	41	.....	9
96.....	24	27	30	32	35	38	41	.....	10
98.....	24	27	30	33	36	39	42	.....	12
100.....	25	28	31	34	37	40	43	.....	13
102.....	25	28	31	34	37	41	44	.....	13
104.....	26	29	32	35	38	41	44	.....	14
106.....	26	29	33	36	39	42	46	.....	14
108.....	27	30	33	36	40	43	46	.....	14
110.....	27	30	34	37	40	44	48	.....	15
112.....	28	31	34	38	42	44	48	.....	15
114.....	28	32	35	38	42	45	49	.....	18
116.....	29	32	36	39	43	46	50	.....	18
118.....	29	33	36	40	43	47	51	.....	19
120.....	30	33	37	40	45	48	51	.....	19
122.....	30	34	37	41	45	49	52	.....	20
124.....	31	34	38	42	45	49	53	.....	21
126.....	31	35	39	42	46	50	54	.....	22
128.....	32	35	39	43	47	52	56	.....	23
130.....	32	36	40	44	48	53	58	.....	24
132.....	32	36	40	44	48	55	59	.....	25
134.....	33	37	41	45	49	55	60	.....	26
136.....	33	38	42	46	50	56	60	.....	27
138.....	34	38	42	46	51	57	62	.....	29
140.....	34	39	43	47	51	58	62	.....	30
142.....	35	39	44	48	52	59	63	.....	30
144.....	35	40	44	48	53	59	63	.....	31
146.....	36	40	45	49	54	60	64	.....	33
148.....	36	41	45	50	55	61	65	.....	33
150.....	37	41	46	50	55	61	65	.....	34

French papers vary in regard to the number of feet and width, but are mostly 9 yards long and 18 inches net wide. Japanese paper is 12 yards long by 36 inches wide. Pulp papers, such as ingrain, are usually 30 to 36 inches wide. English paper is usually 21 inches wide by 8 yards long. American wall paper, as previously stated, is 7 yards long by 18 inches wide, net. A full-length paper of 8 feet will contain 4 square yards, or 36 square feet. The smaller the pattern the less the waste in matching. Waste in paper may be

roughly estimated at one piece in every eight. By "piece" is meant a single roll, for many call it piece instead of roll, as the word roll is confusing. A roll is one piece or 7 yards; a bolt is two pieces, or 14 yards. A bundle is 50 double rolls or bolts, making 100 single rolls or pieces.

Preparing walls for papering, including sizing, is usually charged for by the hour, but some charge so much per piece hung, as this will net more money than charging by the hour. Thus, where sizing is to be done and the area will require say 20 single rolls of paper, you charge three cents per roll for sizing, that will make 60 cents for the job, whereas, the work may not have taken over half an hour; of course the glue must be taken into account in any case. Still, where the cleaning or repairing is such an indefinite matter it is not feasible to charge by the roll, but by the hour.

Speaking of wall papers being seven feet only in length, regardless of quality, all, even the cheapest, are presumed to contain eight yards to the single roll. But increased cost of paper and manufacture in general has led the paper maker to lop off a yard on each roll, rather than add so much to the price. Where this fact is not known the result is sometimes bad, as the workman may run short, and this sometimes means a very serious matter. A Nova Scotia correspondent writes us as follows on this point:

"My way of measuring ceilings is to multiply the length by the width and divide by twenty-one. This will allow for matching and waste. If the paper was eight yards long it might do to allow dividing by thirty, but I have yet to find the American or Canadian wall paper that will measure the full eight yards to the single roll. We had a house of fourteen rooms to

paper not long ago, and I measured each room without allowing for windows, doors or fire-places. The cheapest paper we put on was twenty-seven cents per single roll, and the prices ran up to \$1.25 per single roll. I multiplied the girth of the room by the height and divided by thirty, and although I made no allowance for openings, as I have already said, I found myself two rolls short on the large rooms, and one roll short on the smaller rooms. I measured some of the paper, and found that the most expensive paper contained only fourteen yards to the double roll, and the cheaper paper ran from thirteen to fourteen yards to the roll. There was none that ran to sixteen yards to the double roll. This is why I have decided to divide by twenty-five."

HANDY WALL PAPER TABLE

In the table preceding this one no allowance is made for differences in wall papers as to size of pattern, or repeat, hence it is as though only a plain surfaced paper were to be used, or one having a very small pattern and very little waste in matching. A much better table in this respect is the one following, derived from an English source, and may be described as follows:

Measure around the room, omitting doors and windows, but including mantel. This will give the number of yards or feet, which, by comparing with the table, will show the number of equivalent lengths in the same line. For example, a room 12 feet square measures in the manner described say 45 feet or 15 yards when 30 widths will be required for an 18-inch paper, 26 pieces for a 21-inch paper, that is, 25 widths and 15 inches over according to the table.

Yards.	Feet.	18 in.	21 in.	24 in.	28 in.	30 in.	31 in.
		Widths.	Widths.	Widths.	Widths.	Widths.	Widths.
		ins. over.	ins. over.	ins. over.	ins. over.	ins. over.	ins. over.
1	3	2.0	1.15	1.12	1.8	1.6	1.5
2	6	4.0	3.9	3.0	2.16	2.12	2.10
3	9	6.0	5.3	4.12	3.24	3.18	3.15
4	12	8.0	6.18	6.0	5.4	4.24	4.20
5	15	10.0	8.12	7.12	6.12	6.0	5.25
6	18	12.0	10.6	9.0	7.28	7.6	6.30
7	21	14.0	12.0	10.12	9.0	8.12	8.4
8	24	16.0	13.15	12.0	10.0	9.18	9.9
9	27	18.0	16.9	13.12	11.16	10.24	10.14
10	30	20.0	17.3	15.0	12.24	12.0	11.19
11	33	22.0	18.18	16.12	14.4	13.6	12.24
12	36	24.0	20.12	18.0	15.12	14.12	13.29
13	39	26.0	22.6	19.12	16.20	15.18	15.3
14	42	28.0	24.0	21.0	18.0	16.24	16.8
15	45	30.0	25.15	22.12	19.8	18.0	17.13
16	48	32.0	27.9	24.0	20.16	19.6	18.18
17	51	34.0	29.3	25.12	21.24	20.12	19.23
18	54	36.0	30.18	27.0	23.4	21.18	20.28
19	57	38.0	32.12	28.12	24.12	22.24	22.2
20	60	40.0	34.6	30.0	25.20	24.0	23.7
25	75	50.0	42.18	37.12	32.4	30.0	29.1
30	90	60.0	51.9	45.0	38.16	36.0	34.26
35	105	70.0	60.0	52.12	45.0	42.0	40.20
40	120	80.0	68.12	60.0	51.12	48.0	46.14
45	135	90.0	77.3	67.12	57.24	54.0	52.8
50	150	100.0	85.15	75.0	64.8	60.0	58.2

LETTERING AND GENERAL SIGN PAINTING

Any price list for sign painters, no matter how carefully prepared, must be accepted as approximating rather than being the absolute standard, for conditions vary with the locality and its state of competition, saying nothing of quality of work the individual may be able to turn out. The following table is taken from actual working prices ruling in shops of leading cities east and west. It is interesting as well as profitable for a sign painter to take careful account of some jobs, covering the usual run of work of the shop, and thus ascertain just how much it costs to do the work, then by adding 25 per cent. for profit, see what this will total, then compare with this table.

This list of prices is the same as I embodied in my book, *THE EXPERT SIGN PAINTER*, but to it I have added considerable more details, which will greatly extend its value in affording a ready reference for the busy sign man, who will find it carefully prepared. I have arranged this table alphabetically, in order that any item may the more readily be located.

AWNING SIGNS

The following figures are based on six-inch letters, adding 10 per cent. for each additional inch height. The prices given govern lettering on awnings for stores, wagon covers, horse covers, wagon umbrellas, etc. When work is done in quantity, as for large concerns, allow a discount, according to the cost or size of the contract.

Lettering, one color, per running foot.....	.06
two colors, per running foot.....	.10
three colors, per running foot.....	12c. to .15
Shading add 25 per cent. to above prices.	

BRASS SIGNS

The price for a brass sign must be based upon the kind of work done, whether acid etched letter filled with cement, or a very shallow etching painted in. The price for the former work may run from \$3.00 a square foot to \$4.00, according to size, whether a foot square or more than one foot. Smaller signs may run from \$2.00 to \$4.00, for one line of letters. For two lines add from one-fourth to one-third more. Painted-in letters about 25 per cent. less. Raised letters are charged for by the upright inch, say 35 cents. Raised border charged for by the running foot, say \$1.00 a foot. Bevelling brass sign charge per running foot, 30 cents. Minimum charge, not less than one dollar. Doing an old brass sign over, which involves repolishing and filling, not less than \$1 00 per square foot.

BOARD SIGNS

The following list is based on three coats of good oil paint, made from pure white lead and oil, properly applied, lessening the charge for two or one coat work. If you furnish the board and irons and put up, all extra. If shaded one color, add 25 per cent. extra.

White ground and black letters, per running foot.....	.50
Silver or aluminum leaf, per running foot.....	.75
Ordinary "For Rent" signs, each.....	1.00
Lettering, plain on plain ground, per square foot.....	.25
Same, on large boards, per square foot.....	.20
Gold leaf on painted ground, per square foot.....	.30
Silver or aluminum leaf, cut in, plain ground, per sq. ft..	.20
Plain lettering with paint, or cut in, per square foot....	.10

BOARD SIGNS—RAISED LETTERS

Prices same as painted letter board sign. Wooden letters extra. Gilding rounded or bevelled edge letters 10c. to 15c., according to size and thickness of letter, per upright inch. For aluminum or silver, allow 20 per cent. off price for gold.

BOARD AND GALVANIZED FASCIA SIGNS

	<i>Per Lineal Foot.</i>		
	<i>Gold.</i>	<i>Silver.</i>	<i>Paint.</i>
Up to 6 inches wide.....	\$.50	\$.50	\$.30
12 inches wide .....	.65	.50	.40
18 inches wide .....	.85	.75	.60
24 inches wide	1.00	.85	.70
30 inches wide	1.25	1.00	.80
36 inches wide	1.50	1.25	.90

The above prices are based on smalted ground and one-line lettering.

After the first full line add 30 per cent. per foot for additional work in gold; for silver add 25 per cent. For paint add 20 per cent. per foot.

For repainting deduct 20 per cent.

If customer furnishes board deduct 20 per cent.

If finished in varnish add 30 per cent.

If gold ground add 75 per cent.

If done on both sides add 75 per cent.

CARVED RAISED LETTERS ON FASCIA BOARD, WITH BLACK SMALTED GROUND

	<i>Per Lineal Foot.</i>
3-inch letter, up to 14 inches wide	\$1.25
4-inch letter, 14 to 18 inches wide	1.50
5-inch letter, 18 to 24 inches wide	1.75
6-inch letter, 24 to 30 inches wide	2.00
9-inch letter, 30 to 36 inches wide	2.50

Letters gilded in XX gold leaf, deep shade.

If in silver deduct 20 per cent.

If two lines of letters add 75 per cent.

I have before me as I write several lists of prices that are what may be called standard, in that they are used by large firms or established by associations of sign painters. There is not a little difference in the figures given for identical work. This illustrates again the fact that any price list formulated must be regarded as merely approximate, and for a more correct list, or one more satisfactory to the individual, we must work out our own. Thus, the Pittsburgh Association list gives, for 60 square feet of sign work, \$10.00. The list used by a large western city firm charges for the same amount of surface \$15.00. In the former figure is included two coats of paint with the lettering. In the latter figure the price is for the lettering alone.

However, as affording some basis for giving estimates on, I herewith append two tables of prices:

BOARD SIGNS OF DEFINITE SIZES—PAINT

2 by 16 feet	\$ 6.00	10 by 20 feet.....	\$16.00
2 by 20 feet	7.00	10 by 24 feet.....	19.00
2 by 24 feet	8.00	10 by 30 feet.....	22.00
2 by 30 feet	10.00	12 by 16 feet.....	14.00
3 by 16 feet	8.00	12 by 20 feet.....	18.00
3 by 20 feet	10.00	12 by 24 feet.....	20.00
3 by 24 feet	12.00	12 by 30 feet.....	25.00
3 by 30 feet	14.00	14 by 20 feet.....	20.00
4 by 16 feet	9.00	14 by 24 feet.....	24.00
4 by 20 feet	12.00	14 by 30 feet.....	28.00
4 by 24 feet	13.00	16 by 24 feet.....	26.00
4 by 30 feet	15.00	16 by 30 feet.....	30.00
6 by 16 feet	12.00	20 by 24 feet.....	30.00
6 by 20 feet	14.00	20 by 30 feet.....	35.00

6 by 24 feet	16.00	20 by 40 feet.....	40.00
6 by 30 feet	18.00	21 by 30 feet.....	37.00
8 by 16 feet	14.00	24 by 36 feet.....	42.00
8 by 20 feet	16.00	24 by 40 feet.....	48.00
8 by 24 feet	18.00	30 by 40 feet.....	60.00
8 by 30 feet	20.00	30 by 50 feet.....	70.00
10 by 12 feet	10.00	30 by 60 feet.....	80.00
10 by 16 feet	13.00		

A LIST OF PRICES FOR SMALLER BOARDS THAN ABOVE

	<i>Paint.</i>	<i>Gold.</i>
6 inches by 4 feet	\$2.50	\$ 4.00
8 inches by 6 feet	3.50	5.00
10 inches by 8 feet	4.00	6.00
12 inches by 12 feet	5.00	7.50
11 inches by 15 feet	5.00	8.50
14 inches by 16 feet	5.00	8.50
14 inches by 18 feet	6.00	9.00
14 inches by 20 feet	6.00	9.50
16 inches by 16 feet	6.00	5.50
16 inches by 18 feet	6.00	10.00
18 inches by 18 feet	6.00	10.00
18 inches by 20 feet	7.00	12.00
18 inches by 24 feet	7.00	15.00
18 inches by 30 feet	8.00	18.00

BULLETIN SIGNS

Mr. G. G. O'Brien, the largest operator in signs of all descriptions, particularly in bulletin and wall signs, tells me that in all the cities he is familiar with the price of a bulletin sign includes the rental in all cases. The prices vary from 25 cents per running foot to 40 cents a month, for all ordinary locations, on a yearly contract, including painting and repainting. Specially good location will advance the price beyond 40 cents a running foot, and on less than yearly contracts the

price is proportionately higher. For these figures the work is to be strictly first-class in every particular. Prices also vary as to city. Equal degrees of work may bring more or less according to local conditions. Where the territory for bulletin display is large, as at Buffalo, Cleveland, Philadelphia, etc., rentals are lower, and hence prices are lower. Territory about the city of Pittsburgh is limited, owing to the broken or hilly character of the land, and hence prices are higher, as occurs in all cases where a supply is less than the demand.

As regards the mechanical side of the matter, he says: "Put up as good boards as you can get built, then paint them as good as you know how. Prices will likely be according to the quality of your work. The location of the sign will of course have to be good. We have one sign in this city (Pittsburgh) for which the advertiser pays us \$175 a month; but it is an expensive location. As a rule, advertisers will pay liberally for the work where both work and location are good."

There is the same degree of indefiniteness about prices on bulletin work as obtains with the other forms of sign work. There can be no standard that will suit every case. Some bulletin painters simply make a bid on the work, basing the bid on what they suppose they can do the job for, just as frequently occurs in house painting. Some estimate the work by the square foot. One painter says that from \$15 to \$30 a year for a section 9 feet by 12 feet would be a fair price, with an allowance of one-third off for renewals, where the original painting is to continue for another year. When a bulletin board is divided up into small sections the total yield will be much more than where the entire board is sold to one party. Of course doing the smaller sec-

tions requires much more time than doing the sign as a whole.

Pictorial not duplicated must be charged for at higher rates than plain work. Certain parts of the space will be more valuable to an advertiser than certain other parts. The top, for instance, is more desirable a position than the bottom.

Be sure what work you are to do, and where it is to go, before concluding any contract.

Bulletin signs may be bought ready-made, in sections ready for the posts; these are of sheet steel.

Sizes run from 4 by 6 feet up. Charge so much each up to those ten feet in height, when the charge may be by the running foot, say \$2.00 per foot. For each foot above ten add 25 cents per running foot.

When bulletins are sold in lots a discount may be made, say 10 per cent. If you are not to erect the bulletin boards deduct say 20 per cent. The cost of rent of location must be added to charge. Pictorial backgrounds are to be charged for at the rate of say 10 per cent.

Bulletins ranging from 8 by 12 up to 8 by 40 feet charge at the rate of from \$1.50 to \$2.00 per running foot.

From an official report compiled by the Commissioner of Accounts of New York City I have selected the following data concerning painted bulletin boards in that city. He states that there are about 3700 billboards, with an estimated area of nearly four million square feet.

"The companies charge for the use of this space, where it is a bill-poster board, from one to two and one-half cents per square foot per month, or from twelve cents per square foot to thirty cents per square foot per annum. The charge for painted bulletins aver-

ages about eighteen cents per square foot per annum. These prices, however, are for the ordinary locations in the city. The prices in the choice locations, such as the public squares, intersection of principal streets, etc., are considerably higher. The prices include the cost of posting the sheet, or painting the advertisement on the bulletin board.

"An estimate of the gross revenue to the advertising companies, based upon these figures, would indicate that they annually receive from the billboard advertising privilege in the city approximately one million dollars. It should be borne in mind that this figure deals only with billboards and does not include sky-signs, that is, signs erected upon walls or roofs of buildings.

"Except in the outlying districts billboards are rarely used by the merchants of the city for advertising purposes. Invariably the advertisements are made up of the following: Whiskies, wines, beers, gins, tobacco, cigarettes, patent medicines, teas, chewing gum, soaps, breakfast foods, amusements.

PRICES ON BILL POSTING.—The prices for bill posting are based on a display basis, so much per sheet, for a certain number of days' showing, according to population. The following is a fair average scale of prices:

Cities of 1,000 to 5,000, 3c. per sheet, 30 days showing.

Cities of from 5,000 to 1,000, 4c. per sheet, 30 days' showing.

Cities of 10,000 to 20,000, 5c.

Cities of 20,000 to 40,000, 6c.

Cities of 40,000 to 50,000, 7c.

Cities of 50,000 to 100,000, 9c.

Cities of 100,000 upwards, per month, 12c. Per week, 3c., excepting New York City which is 14c. per month.

Prices on circus work: All stands on protected boards, 15c. per lineal foot (running measure), or 4c. per sheet, per week; new boards, 20c. per running foot, for not above 30 days' showing; single sheets, not listed, 3c. per sheet. Circus posters vary in size considerably. Mercantile posters vary some but not considerably. They will average about 28 by 42 inches.

It should be noted that the above prices are subject to discount in some cases, or to an advance, according to the size of the job and the value of the location.

SIZE OF BILL BOARDS.—Where not ruled by local restrictions, make the boards 10 feet high by 20 feet in length. Such a board will hold exactly one 24-sheet poster. A 24-sheet poster is one composed of 24 sheets, each sheet being numbered, and when put together they form one advertisement. The board of this size will also hold 24 one-sheet posters, or 3 eight-sheet posters.

The next size board should be 7 feet in height.

There are some posters larger than 24-sheet, but are never used outside of the largest cities.

In pasting up posters use good paste and a brush made for the purpose. Paste the board, not the paper. Have also a bucket of water, dip the brush into the paste, and hang the sheet of paper on the brush, at the top of the paper, which will hold the paper until you get it into position on the board. Simply fasten the sheet at the upper corners, then wash the paste out of the brush, using the bucket of water for this purpose, and then saturate the sheet with water, with the brush, and press it firmly to the board allowing no air to get under the paper.

CANVAS SIGNS ON FRAMES

Three feet wide or less, 60c. per running foot, up to 25 running feet. After first 25 feet charge 18c. per foot. If wider than three feet estimate at 20c. per square foot, up to 75 square feet. After first 75 square feet charge 15c. per square foot. For gold lettering charge 10 per cent. less than for similar work on board or metal.

CAMPAIGN BANNERS

For street display, style, ribbons, and portrait panels of canvas sewed on net, 14 by 30 feet, \$1.50 each. Or charge say 30c. per square foot.

DRUM SIGNS

	<i>Gold.</i>		<i>Paint.</i>	
	<i>Single.</i>	<i>Pairs.</i>	<i>Single.</i>	<i>Pairs.</i>
8-inch.....	\$ 2.25	\$ 4.00	\$ 1.05	\$ 2.50
12-inch.....	3.00	5.00	2.25	3.75
18-inch.....	3.75	7.00	2.75	5.00
24-inch.....	4.00	7.50	3.00	5.75
30-inch.....	4.75	9.00	3.75	6.50
36-inch.....	5.50	10.00	4.25	8.00
42-inch.....	6.50	11.75	5.50	10.00
48-inch.....	7.50	14.00	6.50	11.75
5-feet.....	8.50	16.00	7.00	13.50
6-feet.....	10.00		7.00	
7-feet.....	13.00		9.50	
8-feet.....	15.00		10.00	
9-feet.....	18.00		13.00	
10-feet.....	24.00		16.00	

Deduct 30 per cent. for lots of six or more.

Deduct 10 per cent. for flat zinc.

Deduct 15 per cent. if done entirely in silver

Add 30 per cent. for every six inches over three feet in width.

Deduct 15 per cent. for repaints.

Add 75 per cent. for gold grounds.

Add 30 per cent. for silver grounds.

Estimate bracket signs, double face, same as a pair of drums, less 15 per cent.

ELECTRIC SIGNS

The cost to the advertiser for an electric sign may run anywhere from \$100 to \$10,000, according to skilled labor and materials used. Yet he may buy cheaper signs, smaller ones, made of glass with metal frame, and carrying several lamps inside, costing as little as \$20. The electric sign business is distinctly separate from ordinary sign work, and hence I shall not attempt to give any prices for such work, as it involves the work of the electrician as well as that of the sign maker, and the charges are based upon the character of the job, the number of lamps used, and the amount of electricity used. The lamps are called sockets, and each letter will have so many of these lamps, costing the advertiser about 30 cents each, not including the shell of letter. Roughly speaking, the cost of an electric sign may be had by estimating 30 cents per socket, taking cost of shell, cost of background, and finally cost of putting up, when done. The cost of sockets, shell and background will give you total cost of sign, but will include a profit.

GLASS SIGNS

Lettering in gold leaf, up to 6-in. height, per running ft..\$.75

Lettering in silver, up to 6-in. height, per running ft... .75

Lettering in aluminum leaf same as for silver.

Lettering in gold, from 6 to 10 in., per running ft..... 1.00

Lettering in gold, from 10 to 14 in. height, per run'g ft..	1.50
Lettering in silver, 6 to 10 inches.....	.75

For shading add for one color 15 per cent.

Add 10 per cent. for each additional inch in height.

Add 25 per cent. for embossed work.

Add 10 per cent. for blended work.

Add 20 per cent. for gold outlining with transparent center.

For colored background, stippled and varnished, charge per square foot, extra, 10c.

Gold striping on panel, according to width of stripe, charge from 8c. to 15c. per running foot.

Silver or aluminum striping same, less 20 per cent.

A sign painter says that laying silver leaf with water size, as done on glass, is worth the same as for gold leaf, deducting the difference in price of leaf. He adds that gold lettering is worth from 10c. to a dollar per letter, according to amount of letters. Another sign painter figures by the running foot, but adds that it makes the totals look big to the customer, hence he finds that charging 8c. per upright inch and he will be satisfied, and money can be made at his price, he says.

Of course, it is below the regular rate, a six-inch letter making 48c., but all depends upon circumstances. Some work can be done at a profit at 50c. per foot per six-inch letter. Some charge a dollar.

The amount of lettering to be done affects the charge, for where we would charge say \$1.00 per five feet lineal we would charge only about 50c. per 100 feet, lineal.

Then there are signs done on glass and by stencil, in which leafing is the principal material used, and for such work prices must be made to suit, being based on amount of labor and material. No set of prices can very well be given, in this connection.

For other glass signs or lettering with leaf see under different heads, as office transoms, etc.

GILDING ON GLASS

Work done on windows; if done on ground floor increase rate by 20 per cent.

<i>Per Lineal Foot.</i>	<i>Gold.</i>	<i>Silver.</i>
5-inch letter, one shade or lined.....	\$.80	\$.60
6-inch letter, one shade or lined.....	.90	.67
8-inch letter, one shade or lined.....	1.00	.75
10-inch letter, one shade or lined.....	1.30	.87
4-inch or less outlined, or with ground, per lineal foot.....	\$1.00	

For each additional shade add 20 per cent.

For ornamental face add 30 per cent.

For blended shade add 40 per cent.

For each additional upright inch to letters add 15 per cent.

For embossed work add 25 per cent.

For gilded outline lettering with transparent center add 25 per cent.

For colored background stippled and varnished add 10 per cent. per square foot extra.

For gold or silver lines around panels, $\frac{3}{8}$ inch wide, 10 cents per lineal foot. Up to one-half inch, per lineal foot, 20 cents.

A sketch should be made for each order, which helps in making a correct estimate, and often secures a job. Draw to a scale of $\frac{1}{4}$ -inch to the foot.

GLASS FASCIA PANELS, INTERIORS

Charge per square foot.....\$3.00

GLASS SWING SIGNS, IN FANCY FRAMES

Charge \$3.00 per square foot, glass measure, up to \$5.00 per square foot.

GLASS SWING HALL SIGNS, ONE SIDE.

On frosted glass, lettered in black or colors, same as swing signs in color letter.

LAUNDRY SIGNS

These are board signs placed on the sidewalk. They are mostly done with paint lettering, but sometimes gold or aluminum leaf is used. The prices here given are for both sides. For single boards charge as for similar lettering on signs. For lots of ten or more, use the following list of prices:

<i>Size.</i>	<i>Paint.</i>	<i>Gold. Aluminum.</i>	
12 by 18 inches, each.....	\$1.00	\$1.50	\$1.25
14 by 20 inches, each.....	1.25	1.75	1.50
16 by 24 inches, each.....	1.50	2.00	1.75
18 by 30 inches, each.....	1.75	2.50	2.00
20 by 36 inches, each.....	2.00	3.25	2.50
24 by 36 inches, each.....	2.50	3.75	3.00
24 by 48 inches, each.....	3.00	4.75	3.50

OFFICE LETTERING

FOR DOORS AND WINDOWS

	<i>Paint or Aluminum.</i>	<i>Gold.</i>
1-inch letters, each.....	.05	.12
2-inch letters, each.....	.07	.15
3-inch letters, each.....	.10	.20

JAPPANED TIN SIGNS

<i>Size</i>	<i>Gold.</i>	<i>Paint.</i>
Sizes up to 3 by 14 inches, one line.....	\$.80	\$.50
Sizes from above 3 x 14 to 6 x 18, one line....	1.25	.75
Sizes up to 10x14, two to three lines.....	1.50	.80
Sizes up to 12x17, two to three lines.....	1.60	1.00
Sizes up to 14x20, two to three lines.....	2.25	1.50
Sizes up to 18x24, two to four lines.....	3.00	2.00
Sizes up to 20x28, two to four lines.....	3.75	2.75
Sizes up to 24x30, two to four lines.....	4.50	3.25
Sizes up to 24x36, two to four lines.....	5.50	4.00

These prices include outlining and shading, and are for the tin and lettering. Such signs are used mainly by physicians and dentists. Some make the prices for lettering with paint and aluminum 25 per cent. of the prices given for gold. By this method the prices for paint given would be increased. The prices given are for single sign, and where ten or more are ordered at one time, same reading, a discount of about 20 per cent. may be allowed. For lettering on aluminum leaf a discount of 20 per cent. may be given.

MUSLIN SIGNS, UNMOUNTED

Ordinary, per square yard.....	.45
50 or more square yards, per square yard.....	.40
100 or more square yards, per square yard.....	.35

For muslin sign, mounted, add 10 per cent. per lineal foot to above prices.

Muslin banners for railway cars, per square yard..... .45

Add \$1.50 a banner for sewing and rope.

Some charge 10c. per square foot for muslin sign work, which would make double the above list price. But this is for one square yard sign only, decreasing the rate as the size increases, so that a sign four square

yards would be at rate of 7c. per square foot, and for an area of 300 square feet the charge would be 5c. per square foot, or 45c. per square yard.

Others charge by the lineal foot, same as lettering on wood, grading the price by the height of the letters. Colored work is charged extra, say 20 per cent. The same rate applies to pictorial work. For cut-in work add 2c. per square foot additional. You furnish muslin in all cases, but charge extra for frame, moulding, etc., for frame adding 2c. per square foot of sign. Banding and moulding each 1c. per square foot of sign.

OIL CLOTH SIGNS

Ordinary, per square foot.....	.15
40 or more square feet.....	.12
75 or more square feet.....	.11

Frames additional, 4c. per square foot of sign.

Cut-in work 2c. per square foot of sign additional.

Banding 1c. per square foot of sign additional.

Moulding 1c. per square foot of sign additional.

Fancy background, 25 per cent. extra.

Painting before lettering, per square foot, 2c.

	<i>Paint.</i>	<i>Gold.</i>
5-inch letters, each.....	.11	.22
6-inch letters, each.....	.13	.25
7-inch letters, each.....	.15	.30
8-inch letters, each.....	.18	.35

Ordinary one-stroke letters in paint, each 5c.

Shading or other fancy work, add 20 per cent.

Office transoms, gold, numbers, each numeral up to 99, 25c.

Each numeral after 99, gold, 20c.

Numerals in any paint color, each, 50 per cent. less than for gold. Silver or aluminum same as paint. Estimates are based on sizes up to five inches.

POSTERS, HAND-PAINTED

4-sheet	.....	\$1.00
8-sheet	.....	1.25
12-sheet	.....	1.50
16-sheet	.....	1.65
20-sheet	.....	1.85
24-sheet	.....	2.20
32-sheet	.....	2.60
36-sheet	.....	2.90
40-sheet	.....	3.35

Fifteen per cent. discount for dozen or more. For ornamental work, add 25 per cent.

REAL ESTATE SIGN BOARDS

Real Estate or For Sale boards may be either hand-painted or stencilled, and the price must be made accordingly. Also, the charge will be much more for one or few than for quantities. Some charge a dollar for a two by three feet board, in lots of 25 or less. In 100 lots they charge 90 cents each. For all sizes larger than two by three the charge is per square foot, 1 cent, with a reduction of 1 cent per square foot for lots of 25. Stencilled signs may be done for about one-fourth the price of hand-painted signs. That is, they may be sold at that rate.

Prices vary on this kind of work in different cities, and even in different shops in a city. Where some charge 1 cent per square foot for a certain size of sign,

others will charge twice as much. That is, they claim to do so, but competition being keen, you may be sure that the price is not infrequently cut down.

Real estate signs painted white and cut-in with black may be done cheaper than black letters on white ground signs. Where more than one color is used an extra charge must be made. The area of a sign board has to do with the price. Thus, a sign containing say 10 square feet will cost a third more per square foot than one having an area of 100 square feet.

PRICE LIST

10 by 12 inches, in lots of 25 or more, each.....	.50
in lots of less than 25, each.....	.60
for a single one.....	.90
12 to 18 inches, in lots of 25 or more, each.....	.75
in lots of less than 25, each.....	.85
for a single one.....	1.00
12 by 24 inches, in lots of 25 or more, each.....	1.00
in lots of less than 25, each.....	1.15
for a single one.....	1.50
24 by 36 inches, in lots of 25 or more, each.....	2.00
in lots of less than 25, each.....	2.25
for a single one.....	2.50
36 by 48 inches, in lots of 25 or more, each.....	3.00
in lots of less than 25, each.....	3.25
for a single one.....	3.75

The above includes the boards and two coats of the best white lead paint; it is for best work. Discount may be made to suit circumstances—a statement always well to make when speaking of prices. Rather than lose a desirable job or customer one may well cut his prices.

SWING SIGNS, PLAIN, TIN OR ZINC

BOTH SIDES

	<i>Gold.</i>	<i>Paint.</i>
6 by 12 inches.....	\$2.00	\$1.50
10 by 14 inches.....	3.00	2.00
12 by 18 inches.....	3.25	2.25
14 by 20 inches.....	3.50	2.75
18 by 24 inches.....	4.50	3.00
24 by 30 inches.....	7.00	5.00
24 by 36 inches.....	8.50	5.75

For japanned tin add 20 per cent. If on board, add 15 per cent. If fancy shape, add 40 per cent. If on one side only deduct one-third.

SILK OR SATIN LETTERING

Gold, per lineal foot.....	\$1.00
Silver, per lineal foot.....	.75
Color or bronze, per lineal foot.....	.50

SHOW CARDS

Small size tickets, per dozen.....	.50
Medium size tickets, per dozen.....	.60
Large size tickets, per dozen.....	.75
Quarter-size show cards.....	.20
Half-size show cards.....	.45
Three-quarter-size show cards.....	.60
Full-size show cards.....	.75

Above prices are for plain, quick work. For better work use the following list:

Quarter-size show card, each.....	.30
Half-size show card, each.....	.50

Three-quarter-size show card, each.....	.70
Full-size show card, each.....	.90
One and one-half-size show card, each.....	1.30
Double-size show card, each.....	1.65

Add for fine lining, striping, scroll work, etc., from 10 to 15 per cent. For lots of one dozen allow a discount of 20 per cent. For fancy color card add 5 per cent.

TIN STAIR STRIPS

Done in gold or silver, per lineal foot.....	.50
Done in two colors, per lineal foot.....	.30

TRANSOMS, HOUSE NUMBERS ON

	<i>Gold or Silver.</i>	<i>Paint.</i>
Up to 8 inches high.....	\$2.50	\$1.50
If done in the shop.....	2.00	1.00
Three to five numbers, one trip.....	1.75	.75
Five or more numbers, one trip.....	1.65	.60

WALL SIGNS

These signs may be on either brick or weatherboarding; prices are the same. If brick wall has to be first-coated, add per square foot from one to three cents, according to condition of wall, and quality of paint used. For stacks or other high and difficult places, add two cents per square foot. For ornamental backgrounds add 15 to 25 per cent., according to kind and amount of work. Estimates are based on square feet of surface painted and lettered. Prices range from ten cents per square foot up to 100 square feet,

to five cents per square foot for 500 square feet or more. This is for ordinary plain lettering; more or less fancy lettering, with colors, add from one to two cents per square foot. For extra coat of paint add one cent per square foot.

WAGON LETTERING

	<i>Aluminum.</i>	<i>Gold.</i>	<i>Paint.</i>
Plain, one color, per lineal foot.....	.25	.40	.20
Same, with one shading.....	.35	.50	.30
Same, with ornamental work.....	.45	.60	.40

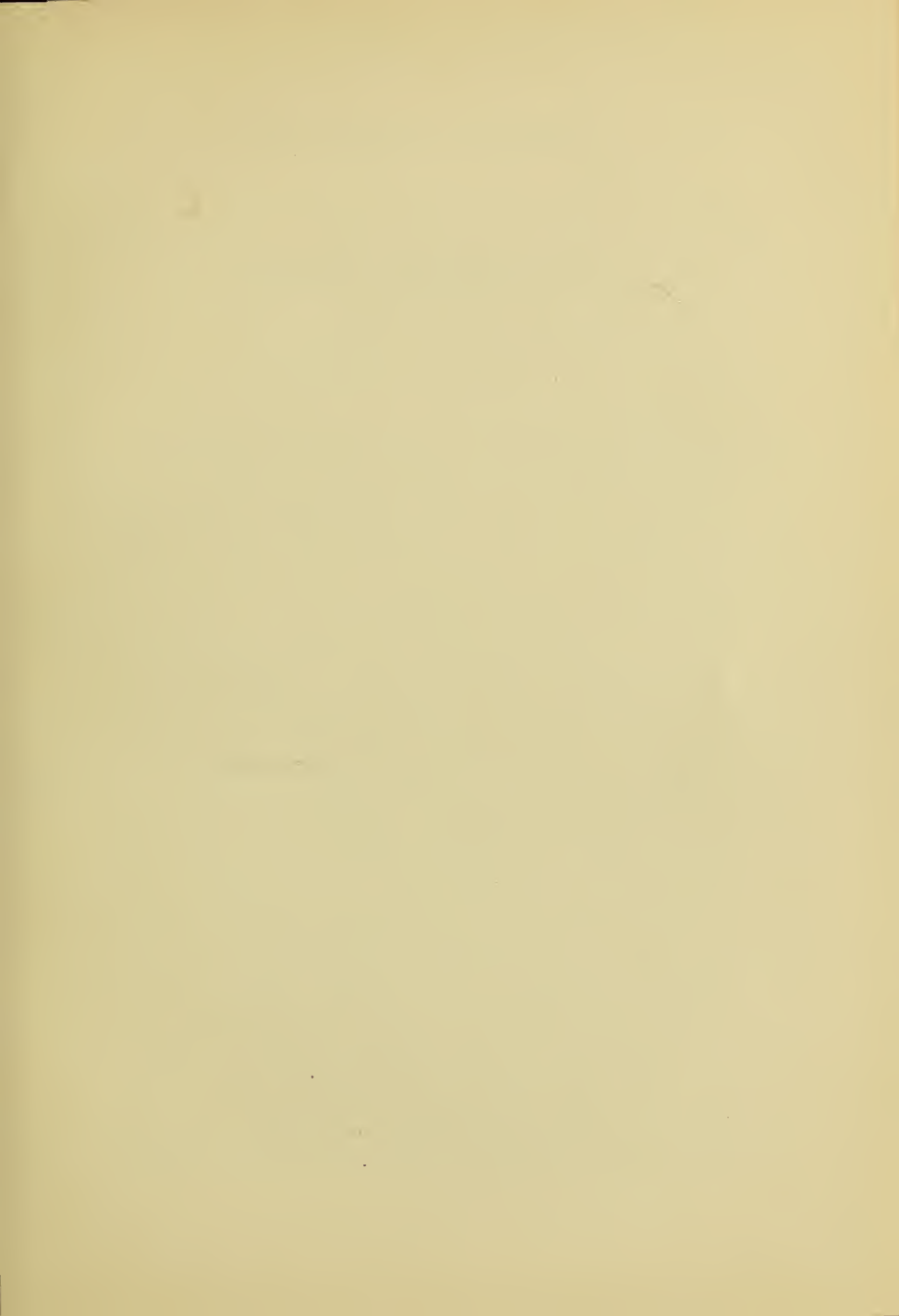
The above prices are for letters up to five inches. For every inch above five add two cents. Pictorial or other fancy or ornamental work may be charged for at the rate of 1.00 an hour.

WOVEN WIRE SIGNS

The charge for the wire mesh sign ready for the letters is about, per square foot.....	.25
Add for painting mesh, if required, per square foot....	.08
Charge for erection of sign, per square foot.....	.35
Galvanized iron letters and attaching same, per vertical inch .....	.10
Gilding galvanized iron letters, per vertical inch.....	.15
Wooden letters and attaching same, per vertical inch...	.08
Gilding wooden letters, vertical inch.....	.10
Aluminum leafing .....	.08

WINDOW SHADE LETTERING

Gold, per lineal foot.....	.50
Silver, per lineal foot.....	.40
Paint, per lineal foot.....	.35
Add 10 per cent. for shading.	



PART SECOND

COST SYSTEM

Do business men deceive themselves as to the actual cost of conducting business? Probably this question has been asked so many times and answered in the affirmative so often that it has lost its force by repetition. Here is an actual case that came under the writer's observation. It was given to him by the head of the firm, who is a bright business man, but had only been guessing as to what it cost the firm to carry on the sheet metal branch of their business.

For a number of years the firm had been doing business on the guessing plan as to the actual cost of conducting it. Quite an interest was taken in the firm by an outside party who demanded that an up-to-date cost system be installed. This was done in all departments at a cost of \$600. The latter figure will give some idea of the business requiring an outlay of that sum for a cost system. The sheet metal work was only a part of the business done by the firm, but no separate account heretofore had ever been kept of that particular part of the business. For several years the firm had been doing a particular piece of sheet metal work on a certain class of houses at a price of \$27, and until the cost system was installed thought they were making money on each one of these jobs. The firm was surprised to find that the actual cost of this work was \$34. This made no allowance for any profit. Needless to say that no more contracts were taken at

the \$27 price. This firm had been taxing one branch of its business to make up the loss of another simply because no systematic cost system had been kept.

The cost of doing business is a very important item and once in a while there is perhaps a man who wakes up to the fact that he has been under-guessing rather than over-guessing the correct amount.—*The Metal Worker*.

BOOK KEEPING

Book keeping, in its plainest definition, is simply writing down what one cannot conveniently carry in the memory. While there are many very elaborate systems of keeping accounts, seemingly intricate yet not so because exceedingly systemized and classified, yet for the painter it would seem that the best method would be a very plain one, with as few details as possible. The jour's time report is, perhaps, the simplest form. It is a record of work done and materials used, the bills for the goods used being on file and supplementing the time reports. With these there can be used a plainly ruled day book, we might call it, in which to note the daily transactions.

With a great mass of printed matter before the editor, relating to the subject, it is difficult to arrange some clear method for the painter's use in keeping track of his business, so much of it is good, with some not quite practical. I have endeavored, however, to perform the task. I have selected the best of the points given by various leading men in the business, and have arranged them in order, for easy reading and understanding. First is given a very fine article by Mr. J. P. Fisher, book keeper for one of the largest painting and decorating firms in Pittsburgh, Pa.

UP-TO-DATE BOOK KEEPING

The office of the paint shop should be equipped with a blotter, journal, cash book and ledger as principals and separate charge and credit books for material, petty cash books, time book and labor record as auxiliary books. The blotter, if used in the manner I recommend, might be called a day book, although in the literal sense, it is a record to which many have access. Some concerns combine the day book and journal, in which case the former loses its identity. The blotter is compiled by contributions from the auxiliary books and charges should be completed therein and extended upon completion of work. This will expedite billing and, if it is the custom to execute bills on the typewriter, the blotter can be handed to the stenographer without fear of disclosing entries in the journal that should probably be confined to the employer and bookkeeper. It will also facilitate journalizing in condensed form.

As a means of reducing work I would advise the use of the six column journal and six column cash book. In the journal two columns each can be classified as sundries and merchandise and the third can be used for the account making the most frequent demands for recognition. The columns on the debit side of the cash book could be designated sundries and merchandise and the third reserved to carry the balance. On the credit side the columns could be represented by sundries, merchandise and expense. The totals of these columns would be posted to their respective accounts monthly, thereby reducing the work of posting and saving considerable space in the ledger.

Presuming that all shops furnish their workmen with time sheets on which to record their daily labor,

we will dwell momentarily on these slips and their treatment. After being carefully audited, they should be transferred to the time book. In recording the time only the total number of hours should be entered, for notwithstanding the time books are usually provided with columns for week days, this detail has been fully covered on the time sheets and to duplicate the figures would entail unnecessary work.

The time sheets should then be summarized for the purpose of condensing the accounts. Where possible, figures should be proven and is especially applicable in this case. The footings of the numerous time sheets should be totaled and compared with the summary sheet, and if correct should correspond. While this will not necessarily guarantee that work has been charged to the proper accounts, it will at least indicate that all time has been accounted for. The contents of the summary sheet is then transcribed in the labor record, which should be ruled with numerous columns to receive the different accounts and distribute them in the various classifications the work covers, such as painting, tinting, frescoing, flower painting, etc.

The petty cash book is used only for transactions in which the cash drawer is involved. The contents of this book and likewise that of the time book are absorbed by the principal cash book.

In this connection a few suggestions to wit:—The ledger is a book used to summarize all business transactions and to show the standing of all personal and miscellaneous accounts. In posting the amount, date and folio will suffice. Eliminate the words “to” and “by” and avoid explanations. Open accounts only for regular customers. Transient buyers should be classed in a “petty” or “sundries” account, and if arranged alphabetically will not require indexing. The same

rule applies to "creditors" from whom purchases are made frequently. Incidentals, however, should remain on file until paid, and then charged direct to merchandise or expense.

The cash account in the ledger should contain only the monthly totals of the receipts and disbursements, which will enable a trial balance to be taken from the ledger without referring to any other books.

Bank accounts should not be kept in the ledger. It is more practical to keep the balance on the stub of the cheque book by entering the deposits and deducting the cheques drawn.

Balancing accounts each month and carrying down the balance is an absurdity, as it involves wholly unnecessary work. All accounts excepting those representing resources and liabilities should remain open until they are self-balanced or cancelled by a journal entry, when they can be closed by ruling a single red line.

Bills should be sent immediately upon completion of work, or in accordance with the terms of credit. Statements should be rendered monthly, not entirely as a demand for payment, but for comparison and the detection of errors that might exist.

Invoices, when received, should be carefully examined. First, to determine that the goods were received; secondly, that the prices named are correct, and thirdly, that the extensions and footings are accurate. The latter is especially important, as bill clerks are but human and liable to err, and the only way to detect their mistakes is by mathematical application. When statements are received, usually about the first of the month, they should be compared with the invoices and the total amount entered in the journal. This method, which may involve a number of invoices to one ac-

count, will, in journalizing and posting to the ledger, entail the use of only one line in the respective books. The statement can be employed in making and accompanying remittances and when returned can be filed with receipts.

It is sometimes of interest to have an explicit statement of expenses at the end of the year, for the purpose of comparison, and to this end the expense account could be dissected and separate accounts opened for the various disbursements.

Trial balances, or balance sheets, should be taken off at least quarterly, although monthly is more commendable, in that it lessens the possibility of error and facilitates checking in search of incorrect entries.

Preparatory to closing books at established periods, the most important detail is stock taking. All salable merchandise should be listed and calculated at its actual worth. Allowance must be made for depreciation commensurate with the decrease forced by conditions. Exaggerated appraisements and inflated values only serve to create a false asset and practice a deception on the real status of the business. The same theory is applicable to the treatment of accounts. All accounts should be closed into profit and loss just as soon as it is proven conclusively that they are uncollectable. In some instances, a suspense account is maintained for this class of debtors, but this is more or less of an evasion, for, while in this state they are carried as an asset, which is misleading, and their appearance on the balance sheet under that title would not serve to strengthen the document. They are eventually buried in the profit and loss account, which should have received them in the first place, for in event of recovery of any of the amounts, a reopening of the account is a trifling matter.

The office is an invaluable accessory to the operating department. It is, in a measure, a panacea for the ills of its associate, and while not always in position to prescribe, it can invariably, if properly systematized, point to the source of trouble and suggest remedies.

Aside from labor, over which the counting department has no control, the store room or stock department furnishes the greatest opportunity for leakage. In this respect it is essential that every precaution should be instituted to prevent goods being removed without a charge or record being made. The stock clerk or custodian of said department should demand from the applicant for material a written requisition or form, stating the date, articles required and to whom chargeable. Upon the delivery of the material he should immediately make the charge in an auxiliary book arranged for the purpose. Another plan would be to have the requisition blank in duplicate, the original being deposited in the office until the order is filled from the duplicate and returned for verification. This process would insure protection in event of the memorandum being mislaid or lost.

Extreme care should also be exercised in handling credits, particular attention being directed to securing a record of the merchandise returned and placing it to the proper account. Confusion and complications frequently arise from failure to make a note of material transferred from one job to another.

In the painting business, which deals largely with estimates and where competitive bidding is keen, one cannot figure intelligently or with any degree of success without having a thorough knowledge to the minutest detail of the cost of production. Many an apparently well regulated and prosperous concern or enterprise has met disaster through inability or failure

to include in the cost of labor and material the proportionate amount of expense entailed in conducting the business.

While advisable, it is not absolutely necessary to establish or maintain a separate cost system, for the information required can be readily obtained from the general accounts of items involving expense, such as salaries, rent, light, heating, postage, stationery, repairs, telephone service, maintenance of horses, brushes, ladders, drop cloths, etc. In fact any outlay that is non-productive and commonly known as "overhead charges" increase the cost of operation and must be computed in order to name a price that would realize a profit.

To ascertain the amount adequate to cover the cost it would be only necessary to take the expense account of the classifications named above, and figure the proportion the total for a certain space of time, say a year, bears to the volume of business transacted in the same period. This will give you a percentage which must be added to the purchase price of material and labor to determine the actual net cost.

Expressage, freight, drayage and other incidentals that pertain to merchandise, should be charged accordingly, as it is the account that is the direct beneficiary and must make provision to cover such contingencies in arranging a selling price.

CLASSIFIED RECORD OF MATERIAL, WAGES AND EXPENSE

Take a small blank book, one with lines ruled horizontally, pages about the size of a sheet of typewriter paper, or $8\frac{1}{2}$ by 11 inches. With red ink rule vertically

lines making seven division, or columns, with head spaces in which place the items, as follows :

Name	Date	Total	Material	Supplies	Expense	Wages
------	------	-------	----------	----------	---------	-------

We will call this the PURCHASE JOURNAL, which name may be marked on the blank book. At the end of a month take all merchandise bills for the month and enter them in the purchase journal. Under heading NAME enter name of party goods are from. Give date of the bill under the next heading. Give amount of bill in the third column. In the fourth column the bills or parts of bills are for materials. In the fifth column enter supplies bought, such as tools, etc. In the next column enter bills for miscellaneous things, such as rent, printing, advertising, and so on. In the last column enter wages. At foot of each column, add up total of column, and you will then have a correct presentation of all the business of the month, which may be seen at a glance.

FILING AND CHECKING INVOICES

Have a certain place or container for unpaid bills. Those small pasteboard drawers that are used in offices may be used for this purpose, though any convenient pasteboard box, or large manila envelope, properly and plainly marked, are good. But have a certain place for such things, so that you may be able to lay your hands on them in the dark, if needs be. When you pay a bill be sure to get a receipt, and file this receipt in a place as suggested for the bills unpaid.

Letter files, an indexed receptacle in book form, and costing 25 cents, are very useful for holding bills

and receipts, as by means of the index letter you can turn to any desired invoice in a moment, and it also keeps all bills or receipts from one firm together, whereas, if kept in a box you will have to sort over all to get the one you want.

Start a new file each year. Look over all letters and invoices and any that are of no more use destroy, and thus simplify the contents of the file. Mark the letter file book with year.

Check the invoices carefully, and compare with previous invoices from same firm, to detect possible errors, which are liable to occur even with a systematic clerk.

KEEP RECORD OF SALES

To record sales, have a duplicate set of bill heads, and use carbon tracing paper between, making out the bill with indelible pencil with sharp point, which will give an exact copy for your own use. Or cut some blank paper to the size of your bill head, and trace duplicate on that. At the end of the month fasten all these duplicate bills together by means of a small brass fastener; separate the bills month by month by means of a thin sheet of pasteboard between.

If necessary to make any allowance during the month, give the customer a memorandum of credit on one of your bill heads, but copy it on paper of some distinct color, so that it can be recognized at once as a credit slip and not a regular bill

The totals of all duplicate bills for the month, less all duplicate credit memos, will show net amount of your sales for the month.

RENDERING BILLS

The proper time to render a bill for work done or goods delivered is when the transaction is complete; that is, when the work is finished, and when the goods have been delivered. Never delay an hour after this. The customer wants his bill, that he may look it over to see if it is right. You want your money at the earliest possible date. Much trouble, even lawsuits, has resulted from long delayed bills, and where some errors occurred that caused the trouble that might easily have been adjusted if done when the transaction of work or goods was fresh in mind. My own experience has been that the only time that I have had difficulty in settling an account was when I did not receive the bill for a long time after it was due.

If you think your customer would be offended by a prompt bill, then make a memorandum on it, stating that it is a statement of the account, and not a demand for settlement. This is not usually done by business houses until some time after the bill, of the first of the month, has been sent, and the "Statement" is really a little reminder that the bill is past due. But do not let a bill get too old, for the fresher it is the easier it is to collect, and vice versa. Nor forget to return a courteous acknowledgment when the bill is paid. Show that you appreciate the payment, as of course you do. Little courtesies in business are invaluable.

It is the experience of painters that when they buy a bill of goods from the paint or varnish house they get an invoice of same at once, and this is also a bill, payable within a stated time. If you are slow at paying time you will soon get a gentle reminder of the fact. Do the same when doing work for a customer; your labor and running expenses, also material when you

furnish that, are goods delivered, and should be paid for within a certain time.

THE MATTER OF CREDITS

Credits involve your own payment of bills. Avoid all debts possible. It is hard to do business without seeking and using credit, however, and here is a rock that has shipwrecked many a painter. Credits are easy, a master painter can get all the credit he wants, and it looks good to him, as a rule. But be prompt in payment of bills. Thirty, sixty, ninety days, they roll around surprisingly quick, and are apt to find you unprepared for payment. It is better to buy and pay as you go. If you have a contract on hand, involving considerable material, and payments are to be made to the men every week, you want to figure out how to meet all demands promptly. It might be better to establish an account with a bank, and borrow money at six per cent., than to accept goods on credit, for cash certainly will buy much cheaper than credit. In order to be able to borrow at the bank one must have property sufficient to safeguard the bank, or some acceptable endorser, and there are places where the character of the man and his business habits insure for him a reasonable amount of credit at his local bank. For a bank does not regard property that a man has so much as the man himself, for it is a fact that some monied men are the hardest to get payments out of.

Getting easy credit yourself may induce you to extend the same to a customer, and it is all wrong. In case of a contract there should be periods during the performance of the work when you should receive a certain amount of the contract price. If this is not

stipulated in the contract your customer will likely be offended if you ask him for money before the work is done. A man will have his house painted, and in making a bargain with the painter will say nothing about when the amount is to be paid, for he will think, only too correctly, that the painter can be stood off for an indefinite time after the work is done. The amount may be large. The cost of the labor on the job is say 54 per cent., and the cost of material or stock is say 26 per cent., and practically 20 per cent. is expense, half of which is cash. Of your business outgo 64 per cent. is strictly cash. Looking at the matter in this light it is easily seen that you cannot afford to give long credit.

Look into the financial standing of a man before you take his work, if you are not acquainted with him. You can of course place a mechanic's lien on a new building, and the same may hold good as a bluff on an old house, but it takes money to get judgment, with delays, trouble and loss of time before you can collect the money, saying that you can collect it at all. The contractor or owner may set up the defence that the work is not up to contract, or according to specifications, this coming usually a long time after the work has been finished. It is a mighty good rule to keep out of law, and it is better to turn a doubtful order down than to take any chances with it.

There is no reason why a painter should not ask a prospective customer for references than for the merchant or material man to ask it of the painter. An instalment house, for instance, will look up your standing, and even if they make a mistake they can recover their goods; but the painter cannot recover when his goods consists largely of time and labor expended.

Have printed on all your bill heads the words, "Terms Cash." This will give the customer a chance

to arrange terms, to accept the work and pay the bill, or ask for an extension of time, as a favor, or to do his fault-finding right then and there. Also when the job is done send a statement, and with it a note saying that if there is anything wrong with the work it must be pointed out now, for rectification, or no allowance will be made after so many days; merchants follow this plan when shipping goods.

It is the ambition of the master painter to secure all the work possible, but he should take none that is not perfectly safe and good in every way. Then collect closely and discount your bills.

TRADE DISCOUNTS

The commonly accepted definition of the term "discount" is that it is interest paid in advance—a deduction of interest made by a banker or moneylender at the time the loan is made; a reduction or abatement allowed by the seller to the buyer, and is applied in a variety of ways, its use depending largely upon the nature of the business to which it relates. Discount is usually expressed at a rate per cent.

There are two kinds of discount, bank discount and trade discount. Bank discount is the interest on a note or other debt, for the unexpired term with three days added, before it is due, and because it is deducted from the face value of the note or debt, it is called discount, and this is what is generally understood by the term discount. Trade discount is an amount written off the nominal or list price of goods, and is usually shown on the invoice, and does not depend in any way upon the date of payment.

Discount, as far as our purpose is concerned, may be divided into four classes: Jobbers' discount, discount off the catalogue or price list, discount for quality, discount for cash or spot dating.

Jobbers' discount may be defined as a discount allowed by the manufacturer to the selling agent, and is outside the usual rate to the retailer.

Discount off the catalogue or list price is the regular discount allowed by the seller to the buyer, and should, in my opinion, be the gross profit to the retailer from his sale to his customer, but as this discount varies so much, it does not necessarily follow that it is so.

Cash discount is a further allowance for prepayment before maturity.

Discounts off the catalogue or list price seem to be fearfully and wonderfully made, ranging from 1 or 2 per cent. to 85, 10 and 10 off, so that it is very evident that the amount of discount depends greatly on how high or low the article in question may be listed.

The method usually adopted by the manufacturer or merchant is to issue a printed price list of their goods and wares, but giving a different rate of discount to the wholesale jobber or retailer, so that the one price list will do all the different branches of the trade, and the rate is subject to the condition of the market and the commercial standing of the customer. For all the fluctuations in the market value it would be very inconvenient, if not impossible, to issue a new price list, hence the market price is reached by giving discounts from the list price. As no two manufacturers or supply houses, to my knowledge, use the same list, their rate of discount usually differs, although the result or net price may be practically the same. Take the discount, say, on brushes as an example: while the discount of one maker may be 70 per cent. and 10 per

cent., another one has a discount of, say, 50 per cent. The brush with a discount of 50 per cent. may be the cheapest article owing to the difference in the list; or, suppose the regular discount off an article listed at \$1.00 is 40 per cent. in one price list, and is listed at 90c. in another, with $33\frac{1}{3}$ per cent. off, the result is the same, both net prices being 60c., and if it is desired to give a further reduction, this is usually done by an extra discount, and then we would have, say, 40 per cent. and 10 off and if on account of buying in large quantities, we would then have 40 and 10 and 10 off; this on the face of it looks to be a discount of 60 per cent., but such is not the case. The reason of this is that all the discounts are not computed on the list price, but only on the sum remaining after the previous discount has been deducted, and is in reality very little more than 50 per cent. One article listed at 90c. with $33\frac{1}{3}$ and 10 and 10 off, would cost just the same as the article listed at \$1.00 with 40 and 10 and 10 off; but if the 90c. article had the same discount as the one at \$1.00 viz., 40 per cent., it would be the same price with 40 and 10 and 10 off as the \$1.00 one with 40 and 10 and 10 off.

Discount for quality is usually expressed by giving a further rate of discount, and to those who can take advantage of this discount, will find it both profitable to themselves and to the seller, and of course varies in amount according to the margin of profit and to the quantity bought.

Cash discount usually runs at the rate of 1 per cent. per month for prepayment before maturity, although the prevailing rate seems to be 3 per cent. off 30 days. The benefit of this discount is apparent to all practical business men, and I cannot too strongly commend it to your earnest consideration, and I am sure if the manu-

facturers or supply men would give their opinion on this question, they would all strongly advise taking advantage of this discount.

The proper proportion of this discount is impossible to fix, on account of the fluctuation of market values, owing to the change in the price of material or labor, or financial stringency, so that the discount of to-day may be different from that of to-morrow, it being—as I have previously stated—almost impossible for the manufacturer to issue a price list every time the market changes. For this reason alone, the rate of discount must necessarily change with every variation in the market value of material or labor, so that we can have no fixed rate of discount.

Take the price list of sheet glass as an example. I think you will find that the list has remained the same for the last twenty years or thereabouts, but the discount has varied from as low as 25 per cent. off to 50 per cent. or more. The proportionate rate of discount or profit should probably be larger on glass, on account of risk in handling, than perhaps any other article in our trade.

The discount on brushes used in our business should also be large on account of the very high price list issued by most manufacturers, a brush that costs us about \$1.25 net being listed at about \$40 to \$50 a dozen.

As nearly all our colors, oils, turpentine, varnishes, white lead, putty, etc. are bought at a net price the only discount we can look for are quantity and short dating.

FIXED CHARGES

In these days of keen competition the item of fixed charges plays a very important part in every business, and unless a man knows what his fixed charges amount to, he is figuring in the dark, because these charges must be provided for in making up the cost of work, just as much as wages and material.

In dealing with these different items of fixed charges, I have classified them under five headings, viz.: (1) Rent and taxes; (2) Salaries, office help, etc.; (3) Cartage; (4) Heat, light and telephone; (5) Insurance, fire and accident.

RENT.—The first to be considered is rent. It matters not how small the business or how little space is required for carrying it on, an amount of money has to be paid out for rent, which must be charged against the business. Some men in our line of trade, who own their dwellings, carry on their business in shops in the rear, but even where this is done a certain amount should be charged against the business for the space occupied. If the proprietor of the business is fortunate enough to own his own premises, then the rent item would be in the form of interest on investment, taxes, etc., but in any case it must be considered as a fixed charge.

OFFICE HELP.—Next after rent comes salaries and office help (wages of workmen of course must not be confused with this item). This covers simply what might be termed the non-producers connected with the business, such as proprietor's drawings, book-keeping, stenographer, and any other office assistance required. Some may say, we do not keep a book-keeper, we only have a man come in once in a while to write up our books and make out our accounts, but even if this

system is adopted, it comes under the heading of fixed expenses, and must be considered.

CARTAGE.—Then comes cartage, which is no small item, as every painter knows. If anyone will look over his books for the past year and figure up what this one item amounts to, he will surely be surprised. I venture to say that there are many painters who are paying out considerably more than a thousand dollars per year for cartage alone.

HEATING AND LIGHTING.—These items may not be very important to some, but to others it is quite an expense. The man with a small shop does not require much of either, but the man with more expensive premises, who perhaps keeps men constantly employed in the shop, painting and glazing sash and various other kinds of work, has to provide for a considerable expenditure.

INSURANCE.—This is a charge that affects all of us, and while there is apparently nothing to show for the outlay no one will dispute the wisdom of keeping stock and buildings covered up to the required amount, as we cannot tell what day a fire is apt to destroy our buildings and stock. In the more congested districts in our cities, the rate is necessarily higher than in the outlying parts, but no matter what the rate is, a healthy business can quite afford to carry a full line of fire insurance. Under this heading also comes accident insurance covering workmen. Those of us who have men working on high scaffolds or other hazardous places, will quite realize the importance of being covered against loss in case of accident or perhaps even death of an employe. Many employers connected with the building trades have suffered heavy financial loss through not having their employes insured against accident, and yet these same employers would laugh at

the idea of not carrying any fire insurance, but it appears to me that one is equally as important as the other.

Now, in conclusion, a natural question might be asked: What does all this amount to, and to what extent does it affect me? Let us take, for example, the man who is doing a business of one hundred thousand dollars per year, and I think the following figures are approximately correct:

Rent and taxes.....	1 per cent. or \$1000
Salaries	5 per cent. or 5000
Cartage	1 per cent. or 1000
Heat and Light.....	1/5 of 1 per cent. or 200
Insurance	3/4 of 1 per cent. or 750

Say 8 per cent. or \$7950

From the foregoing figures it will therefore be seen that the fixed charges on a painting and decorating business of \$100,000 amounts to 8 per cent., or \$7,950 on the turnover.

I have taken the amount of \$100,000 chiefly for the sake of easy comparison, but at the same time I have little doubt there are many who have exceeded this amount, and I feel satisfied that those who have done so will find the proportion slightly decreased, while if those who have done a considerably smaller business will look carefully and impartially into their books, they will find that the percentage would be considerably increased, and that the smaller the business, the higher the percentage of fixed charges. Of course local conditions will somewhat affect these figures.

It must also be remembered that these figures would hardly apply to a pure decorative business, but have been compiled on results from what might be called the average painting and decorative business.

The following table shows a percentage of the fixed charges for one year, by a large contracting firm of painters, the volume of the business amounting to \$129,589.92:

	<i>Per Cent.</i>
Labor	51.55
Shop salary	1.15
Office salary	5.95
Teamsters' salary	1.14
Total labor of all kinds.....	59.83
Barn expense .....	.53
Shop expense .....	.72
Insurance (fire and liability).....	2.75
Stationery .....	.13
Rent .....	.46
Legal .....	.12
Telephone .....	.21
Carfare .....	.26
Postage .....	.09
Brushes	1.24
Sponges .....	.98
Oil Colors	6.07
Dry Colors	2.25
Varnish	2.74
All liquids (except varnish).....	5.76
Wall paper	4.59
All other merchandise.....	2.02
Interest on inventory.....	3.95
	<hr/>
Profit	94.75
	<hr/>
5.25 per cent. equals \$6,803.47.....	100

SUGGESTIONS ON FIGURING COSTS

1. Charge interest on the net amount of your total investment at the beginning of your business year, *exclusive* of real estate.

2. Charge rental on all real estate or buildings owned by you and used in your business at a rate equal to that which you would receive if renting or leasing it to others.

3. Charge in addition to what you pay for hired help an amount equal to what your services would be worth to others. Also treat in like manner the services of any member of your family employed in the business but not on your regular pay-roll.

4. Charge depreciation on all goods carried over on which you may have to make a less price because of change in style, damage or any other cause.

5. Charge depreciation on buildings, tools, fixtures, or anything else suffering from age or wear and tear.

6. Charge amounts donated or subscriptions paid.

7. Charge all *fixed* expenses, such as taxes, insurance, water, light, fuel, etc.

8. Charge all incidental expenses, such as drayage, postage, office supplies, livery or expense of horses and wagons, telegrams and 'phones, advertising, canvassing, etc.

10. Charge collection expense.

11. Charge any other expense not enumerated above.

12. When you have ascertained what the sum of all the foregoing items amounts to prove it by your books and you will have your total expense for the year. Then divide this figure by the total of your sales and it will show the per cent. which it has cost you to do business.

13. Take this per cent. and deduct it from the price of any article you have sold. Then subtract from the remainder what it cost you (invoice price and freight) and the result will show your net profit or loss on the article.

14. Go over the selling prices of the various articles you handle and see where you stand as to profits. Then get busy in putting your selling figures on a profitable basis, and talk it over with your competitor as well.

JOURNEYMENS' TIME REPORTS

Many different forms are in use for time reports, but in the main they are the same, being intended to show by the workman himself where he worked and what he did on any particular working day of the week. Some shops use a postal card form, which may be mailed to the shop daily, or delivered by the workman himself should he have occasion to go to the shop at the end of the day's work. This is very handy in case the work is at quite a distance from the shop. The shop pays for the cards and mailing. Six are placed for each man on the job, in the foreman's envelope, when the job is out of town, and the cards being addressed to the shop, the workman simply notes down what he did that day, detailing exactly all the work he was engaged in during the day. He gives location of work, and number of hours he made. This card must be mailed that evening, or not later than early the next morning. A printed note at bottom of card may read thus: "Pay for this day will be withheld if time is not filled in correctly." The workman also fills in with his name and his home address, and date in full.

This makes an accurate time report for one day; accurate if no errors have been made, and which would likely be discovered some time by the end of the week. On account of the notice as to correct rendering of time the painter is apt to be careful in filling out his card.

Where weekly time reports are used they should be in the hands of the book-keeper at the shop by not later than the morning of pay day, say before 8 A. M. The boss or superintendent should examine the time cards carefully and compare with the slip furnished by the foreman in charge of the job. This will give the book-keeper time to have the workman's pay in his envelope in time for its payment. The pay envelopes are to be addressed to the men for whom they are intended, each envelope bearing the name of the man entitled to receive it. The envelopes can be delivered to the foreman of the job on the afternoon of the pay day, whether this be Saturday or Monday. Some pay Friday afternoon. With this work out of the way the shop may be closed up early on pay day.

Some shops keep the weekly time reports on small pocket-size books, which are easily lost and never entirely satisfactory. Better have a larger book, one that will hold the reports for several years, say from two to more, according to size of business. These records will be very useful and interesting in comparing one season with another. Also it enables you to look up any men who may have been employed but a short time.

The card index system for keeping the time as well as material records of each job, with provision for entering contract price, and total net cost, as well as the percentage for overhead expenses and the profit and loss, is to be preferred, it will be easiest referred to in future years, when bids for repainting are asked. And it would be well to enter on the backs of the cards the name of the foreman in charge of that job, as well as any special features that have lessened or increased the cost of the work.

ESTIMATES AND COSTS

Very satisfactory and definite forms of estimating have come into common use, yet circumstances vary so that eternal vigilance is necessary to prevent occasional losses. Some shops have adopted blanks on which the estimate is made up in detail, and which can later be compared with the books to verify the judgment of the firm as to the stock and labor consumed. Such blanks can also contain such other information as may be necessary to record, and yet which cannot be shown on the books.

The matter of submitting estimates is of especial importance, and no work is too small to receive other than careful attention. The use of duplicate estimate blanks has been adopted, and this has done much to impress customers with our safer business principles, and also has done much to prevent those former misunderstandings that left a worse feeling than open disagreements, and all estimate blanks should be filed under an index.

THE CONTRACT FORM

One of the simplest and best printed forms is that in use by the Society of Master House Painters and Decorators of Massachusetts, and it is simply duplicate sheets 4 by 6½ inches, tablet form, with alternate white and yellow pages. A carbon paper is placed between, so that duplicates are produced. The white paper, showing the pencil writing, is given to the customer, while the yellow slip, showing the carbon tracing, is retained. The slips have printed on them the following:

"..... Hereby agree to perform the work specified for the amount agreed upon."

Following which is a written description of the work in detail, with date also.

In company with this record comes the workman's time report, and in which he will give not only time, but in some forms gives also the materials he used, so that it may be used in checking up your cost account of material used.

THE COST SHEET

Have a sheet of ruled white paper, of size $8\frac{1}{2}$ by 14 inches, and at the top write name of customer, date, amount of contract, and date of estimate. The first charges on the sheet are cartage, fares and telephone. Then comes each man's time for the day. For extra work use a separate sheet and pin it to the first. A sample of such a cost sheet is herewith given. The cost of running the business is not shown, as that will vary in different shops:

COST SHEET

MR. THOMAS S. STEWART,
411 W. Smith St., City.

Estimate of Nov. 10, 1912, \$150.00

	1912.	Days.	Hours.	Amount.
Nov. 15	Cartage,			\$2.00
	Carfares,			1.00
16	Jones, etc., etc.,	1		3 00

And so on to the end of the job, noting each man's work, what he did, number of hours and days, carrying amount to last column, and at end count up days, hours and amount. At bottom of sheet have this:

Estimate,	\$150.00
Cost,	47.65
	<hr/>
	\$102.35

MATERIAL SHEET

For charging materials a yellow slip is used, entering daily reports on same of materials used on the job and cost thereof. The use of tools should be added to the cost sheet, being part of cost of doing the work. File away these sheets for future reference. Handy in case you have to do the same or similar work again. Here is a sample of the material sheet. The heading is exactly the same as for the cost sheet, only the items differing, as follows:

1912.			
Nov. 15	White lead,	100 lbs.	\$7.00
	Linseed oil,	10 gals.	9.00
	Turpentine,	5 gals.	3.50
	Whiting,	20 lbs.	.30
	Ochre in oil,	10 lbs.	.80
	Raw umber in oil,	2 lbs.	.22
	Burnt umber in oil,	2 lbs.	.22
	Raw sienna in oil,	2 lbs.	.22
	Dry colors,	5 lbs.	.75
			<hr/>
			\$22.31
	Returned,		1.15
			<hr/>
			\$21.16
Total labor of all kinds.....			59.83

TAKING AND FILING ORDERS

The card system is the simplest and about the best for the purpose of keeping account of orders that we know of. When an order is received it is recorded on a small card, and this card is filed in a box made and kept for the purpose. The "live" orders are kept in the front part of the box, while the completed or cancelled orders are indexed in the back part of the box. In this way you have the work before you, and do not have to turn over pages of a book, with chances of overlooking some old order that may be among the cancelled ones. The cards also prove handy many times in deciding questions long after the details of the work have escaped your memory. At the same time never destroy the original order of the customer; keep them in a special case.

ESTIMATE FORM

Here is a suggestion for an estimate form, one that is in actual use. This estimate when signed becomes a contract. The paper may be about 5 by 8 inches:

JULIUS LOTZ

Painter and Decorator

Endora, Kas.

An estimate for

.....

.....

EXTERIOR WORK

..... Coats on

..... Coats on

..... Coats on

The surface to be put in proper condition before painting. Paint to be made to suit conditions with strictly pure white lead or zinc, pure linseed oil, turpentine driers, and pure tinting colors. Each coat to be well brushed out and allowed to dry thoroughly before the next coat is applied.

INSIDE WORK

\$ c.

.....

Total,

Terms cash on completion of work.

The above Estimate is accepted and you are authorized to proceed with the work.

..... 1912

THE INVOICE OR STOCK BOOK

The invoice or stock book will prove its value many times, particularly at the end of the season. It can be used in all the ways of thorough book-keeping or simply as a record of date, amount and price of stock pur-

chased. In connection with the time book and expense account it will give a fairly accurate resumé of the serious end of the season's business. Some shops have adopted a debit and credit system in the invoice book, wherein they claim to be able at a glance to take account of stock. This method may also prove advantageous in cases where journeymen have easy access to stock or material, and may, perhaps, prove a check on the personal ambitions of some who desire the swift accumulation of worldly goods.

THE GRAINER TO THE TRADE

It is suggested that grainers-to-the-trade, or those who do the graining for master painters, should have some printed postals something like the following:

'Phone

WILLIAM E. WALL

Grainer to the Trade

Where to Work

Kind of Work

Remarks

Name

Address

A few of these cards may be left with each painter for whom you work, and when he has a job for you he will fill out a card and mail it to you. You should

have your name and address printed on the address side, of course. The telephone may be used, but the card comes in where the telephone may not be in use. The card is also handy for filing away for record.

SHOP MANAGEMENT

SHOP RULES.—Some Time Reports have printed on the back a set of Shop Rules, and the following is a fair sample of such, being the "Uniform Shop Rules" adopted by the Master Painters' and Decorators' Association of Boston, Mass.:

1. All men must supply themselves with putty knife, dust brush, and slippers for inside work; also with clean white overalls once a week.

2. A set of brushes will be furnished to each man, who will be held responsible for them on leaving the shop. They must be returned before last payment is made.

3. Working part of noon hour is forbidden except by permission.

4. No smoking permitted on any of our work.

5. Men will be held responsible for all their work.

6. All men are expected to be neat in their appearance, as well as in their work, and courteous to all our patrons.

7. When working around window on both inside and outside strict attention must be paid to keeping the glass clean.

8. When working on scaffolds or ladders, examine everything to see that all is safe before venturing on same. If any ladders, falls, or other tools are found defective, they must not be used, and the same must be reported at once to the office.

9. All men are forbidden to use bath rooms or throw waste water in sinks on any job where they may be working in any way, shape or manner, whether the house is occupied or not.

10. New brushes must not be left in water over night.

11. Strict account must be given of all stocks taken from the shop.

12. Each man must render an account of time for each day, on Time Sheet, giving a separate account for each job.

13. Be prompt, do your work well and only as directed. All suggestions will come from the foreman of the job, or the man in charge.

14. Keep your paint pots clean, and take good care of your brushes and stock.

15. Intemperance or disobedience to the above rules will not be tolerated.

PREVENTING WASTE IN THE PAINT SHOP.—It will pay to have a man in the paint shop for mixing all the paint. I have seen several men mixing paint in a shop, each for himself, and this means lack of system and great waste of time and material. Have a book of formulas, for mixing every kind of paint or color, tint, etc. This will save time in making up a batch of any particular color. It pays to buy color in press-top cans, and have a press-top machine, costing about \$1.25. The principal pigments at least should be bought in press-top cans. Of waste in brushes the subject has been well presented under the head of brushes. Have a boy whose duty it is to clean the paint pots, keep the shop clean and in order, and to do such other little tricks as may be required. In this way the time of a man may be saved.

Every paint shop should have posted up a set of rules, which should be obeyed. Cans should be kept clean, and when not in use placed on shelves. Cloths should be folded and put away when not in use. Ladders should be hung up, according to size. Have a barrel for keeping all paint skins in. Work these skins up into a paint. Number every pot, brush, ladder, etc., and a record kept of same. When a man goes out on a job make out a blank, showing what he took with him, charging same to man in charge of job. Hold him responsible for same until job is done and all articles, material not used, etc., are returned to shop. Workmen will be more careful and not so wasteful if held to strict account for everything they take out. When a brush is worn down to a stub, let it be handed in and the man credited with it. Don't let men stand around in the morning, waiting for material. Have everything on the job the day before or in the morning before the men go to work. When done with one job, instruct the men so that they can go right to the next job without loss of time.

SYSTEM IN THE PAINT BUSINESS.—Much has been written and said upon this topic, of late years, for painters realize more than ever that if they are to make any money out of the business they must conduct it strictly upon business principles and according to modern business methods. This means system. Win and hold your trade by honest dealings. But be very careful about the contracts you make. Have a complete set of specifications for the work. Trust nothing to the word of the party you are to work for. Have it all down in black and white. If you find yourself standing to lose on a contract, still do it right.

System begins with the proprietor himself. He must set a good example to his men. Here is a good

division of the master's time: From 6.15 A. M. to 7 A. M., get the men out. From 7 to 8 see about the color mixing for the next man in during the day; do not keep him waiting. From 8 to 10 look after the men and jobs. From 10 to 11, new business. From 11 to 12, in the store. From 1 to 3 P. M., look after the men. From 3 to 4.30, new business. From 4.30 to 6, in the store and shop, get reports from the men and give orders for the following morning. The foregoing routine is given by a master painter as his own. He adds that of course you will have to deviate from this set programme somewhat at times, but not the store time, for you will find that your store men will make plenty of appointments for you for these hours (11 to 12 and 4.30 to 6). You cannot afford to disappoint here, so be sure to be at the store at set hours.

The best and best paying shops insist upon the personal neatness of their men, and upon good conduct. Be neat in work and in everything. It pays, and is particularly essential when doing business with particular people. Have cloths for covering furniture, floors, etc. If you should happen to damage or spoil anything, the damages claimed would not be small. Besides which carelessness hurts your business with monied clients.

A master should be indeed master of his trade. And he must also be a good business man. Keep track of the cost of doing each and every job, big or little. Employ good foremen. The right man will earn his pay and more. He should be a good workman, quick to see and decide things, and able to size up men under him. This will enable him to put the right man in the right place. Carnegie says this made him rich.

Give the men fifteen minutes Saturday afternoon for cleaning up things, for inspection. Give a prize each

month to the man who keeps his working clothes and tools, etc., in the best condition. Visit the job at least once a day. This will show your client that you are personally interested in the work, and at the same time the men will understand that you are keeping tab on them and their work.

Keep a truck book, in which at the completion of a job a record can be made by the foreman of all ladders, trestles, planks, paint, etc., left at the job. Have everything hunted up and placed where the truck man can get them when he calls for them. Have a man to go over the building before the close of day and gather up any oil rags or waste, and place same in a covered iron pail.

It is difficult to get good men, but you can replace undesirable men gradually, and in time get a force of good men. Pay top price and get the best possible men, and appreciate such men properly by kindness and fair dealing. Encourage them to save money and to live clean lives. Set the example in this direction. Permit no profane or vulgar talk, nor tobacco smoking, on the job. Discharge a man for frequenting saloons. Have your rules, and enforce them, even to the discharge of the best man you have.

Pay the men promptly, whether it is Monday morning or Saturday evening pay-day. This is very important, because men will hold you in higher respect when they know that you pay regularly, and pay the highest rates. Otherwise they will look upon you as poor and unreliable.

Never lend any tools to a workman. He has a little job to do at home, or for the boarding missus. Let him buy his outfit, let him get it elsewhere. Pay him no money between pay-days. Allow no lounging

around shop or office, unless under waiting orders, or with permission from foreman or boss.

BUSINESS CORRESPONDENCE

No matter how small a business you may be doing, use only the finest of printed stationery. This will impress customers favorably, will give them the impression that you are a good workman as well as business man, and make it appear that you are doing a rather prosperous trade. But this has been dwelt upon in another part of this work. My aim here is to give a few suggestions regarding the matter of correspondence. Answer all letters promptly, by next mail, if possible. If the party telephones, reply at once; for you can not afford to be without a telephone in your shop or house.

Be courteous in your letters. Never say a stinging thing, no matter how great the provocation. Keep sweet. It pays. If a customer writes as though very mad, reply in the kindest terms possible, to soothe him. If he is a chronic kicker, hard to get along with, but has a lot of work worth keeping, act as if he was amiable. If his work does not amount to much, cast him off, but do it courteously. It is a personal rule with me to sever diplomatic relations with disagreeable persons.

A letter is not as good as a personal visit, if there is any dispute about work or bill, or what not. In fact, a letter is only to be used when the only convenient means for communicating with a party.

When you send in a bill for the first time, ask if the work done was perfectly satisfactory, and if not, express regret and a desire to rectify the matter. This

matter of asking about the job when done is highly important, because it puts the customer on record if he replies.

Always keep a copy of your letters, for possible future use. Keep all letters received in a file book. Whether you write with pen or machine, it is easy to have a duplicate carbon copy of letters. There is a specially prepared carbon paper for copying pen written letters.

Never send a postal card in place of a letter. Of course there are times when the humble postal may be used, but for correspondence it pays to spend another cent and use the letter form.

If the goods you have ordered prove, upon arrival, to be unsatisfactory, at once notify the sender, in plain business terms, avoiding anything like feeling. We are all human. All liable to make mistakes. Above all never write a letter while hot; wait until cool. Or if you must write while hot, to relieve your mind, write, make it a stinger,—then tear it up. In a few hours you will be in a better condition for writing the letter.

Never write with a lead pencil. Don't scrawl. Use a good pen and good ink. Never send a stamped or unstamped envelope where you ask for a reply. It is only proper to send a stamp where the reply you wish is entirely of interest to yourself. When you fold the letter sheet, don't make the corners come square, but let the upper half-sheet be a little shorter than the under one, then neatly double again so that it will easily go into the envelope. Use regular business envelopes, white preferred, and the same of the letter sheet. Place stamp in upper right-hand corner, head up, not just any way. Avoid flashy printing. Be plain

FINAL OBSERVATIONS

You are entitled to a weekly stipend, just as much as any man in your employ. Set some price for your services that you can take on pay-day, and have it a part of your pay-roll. At the end of the year, or better still, every six months, find out the volume of business done and the total expense and you can easily find the percentage of expense that is chargeable to every contract before you can know your profit. Have time and stock sheets printed and everything charged on them that is taken to the job. From the stock and time sheets you can transfer to a book kept for that purpose all labor and material that has been used on the job; add your percentage of expenses, and if you have anything left you can see at a glance just what your profit is. You will also find that some foremen will do a piece of work in less time than others, and are therefore more profitable to you. It is better to make out your specifications in duplicate, and if you are successful in getting the contract, place on the back of your copy all of the figures that you made for the work. When the work is done, file your cost sheet with your copy and you have a record of the contract that you can turn to at any time. If you are called upon at any time to estimate again on the same work, and are busy, you have all the data before you to work with. If you did not come out even the last time you can figure to make a profit this time.

The method of charging is of great importance. I will mention one way which I think is good. Have a strip list of all the men in your employ; carefully go over the list the last thing each day. After a time you can readily tell where every man has been working. This, in addition to the time kept by the different fore-

men and handed in on a slip with their own time-sheet on the morning of pay day. Also, each morning let the book-keeper take a position where he can see every man go out, and make a note of all stock to be charged. If this is done thoroughly there will not be many mistakes made. I have in mind a master painter whose specialty is new work, and he knows just what has been spent on every job at any time he asks for it. When the architect wants to know just what per cent. is done, by consulting his records he can tell at once. I care not how much you know about the practical side of painting, or how well educated you may be in the technical departments that go with the trade, if you do not keep track of the financial end of your business and have some system whereby you can keep tabs on your individual account, you will find that you are in the painting business for the fun of being boss.

One of the most essential things for the master painter to consider is how to get business. No matter how much system he has or how much he knows about painting, he can make no profit unless he has the work to do. There are various ways of getting business, and one of the best is by advertising. There are as many ways of advertising as there are advertising agencies. The best way that I have found is the so-called unit system. Keep a mailing list and send to each one something every now and then, but keep everlastingly at it, especially if you do not have them on your books as a customer. By so doing you will land some of them after a while. Nothing attracts a person so much as persistence, and if you keep at it they will begin to sit up and take notice after a while.

I will not attempt to go into details on this subject, but advertising does not necessarily mean newspaper or program advertisement, nor circular or similar

forms, but the fundamental principle of advertising is to seek acquaintance with prospective customers, and after that is partly or wholly accomplished to govern oneself by the motto, "Lest they forget."

Finally, however much you systematize your business, never allow a system to deteriorate into red tape. A system should always tend to simplify business practices without endangering their security. It should always impress those who are brought into contact with it of the firmness, justness, and progressiveness of all its demands.

There was a day when a man's business reputation rested wholly on his knowledge of his trade, and whether he could read or write it mattered little. To-day the customers demands of us not only the mastery of our trade, but our strict compliance to the usages and practices of business principles.

AN INDEX CARD SYSTEM

The following table shows both sides of a card-index cost system, the card being 8 by 5 inches. It is to be filed away in a cabinet, and may be easily turned to at any time when it is desired to look up the exact cost of any job done. It is also useful in future estimating and in case of a disputed account. Further, it obviates the need for more or less elaborate ledger entries.

- | | |
|-------------------------------|------------------------------|
| 7. Varnishing. | 27. Frosting letter. |
| 8. Laying out. | 28. Getting out scaffold |
| 9. Making pattern. | order. |
| 10. Perforating pattern. | 29. Taking in scaffold. |
| 11. Pouncing. | 30. Delivering. |
| 12. Tacking on muslin. | 31. Cutting cards. |
| 13. Tacking on oilcloth. | 32. No. books gold or silver |
| 14. Sizing in. | received. |
| 15. Gilding; patching. | 33. No. books gold or silver |
| 16. Nailing on letters. | used. |
| 17. Cutting in. | 34. No. books gold or silver |
| 18. Lettering. | returned. |
| 19. Filling in. | 35. Muslin used. |
| 20. Cleaning off surplus gold | 36. Oilcloth used. |
| or silver. | 37. Bronze used G. S. |
| | 38. Hanging signs. |
| | Rate per hour..... |

Employee's name.....

Date.....

Job No.	Kind of work	Quality.	Started work		Stopped work		Total Time	
			Hrs.	Min.	Hrs.	Min.	Hrs.	Min.
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This report *must be* filled out after each job is finished, showing every moment's time put in during the day; to be turned in at the office each night, and must agree with the weekly time card.

MISCELLANEOUS INFORMATION .

WHAT A PAINTER CAN PAINT IN A GIVEN TIME. How much surface can an average painter coat with oil paint in an hour? A painter kept a close account in doing a job, which showed that his men spread 12 square yards per hour, on exterior work, such as siding of house, porches, etc. This, we may say, is somewhat better than the average. From another source we ascertain that a painter with a new pound brush, size not stated, can on the sidewall of a frame building cover from 720 to 800 square feet of surface, one coat, in a day of nine hours, and do the work right, provided the paint is right and the painter is not too slow. This estimate seems to us to be nearer the real average than the first one given.

But it is not easy to say just how much a man ought to coat in a given time, as conditions vary greatly. Really, the best way is for every painter carrying on the business to keep a record of work of various kinds, for a certain length of time, and of work of various kinds, until he can deduce a very close estimate, both of time and material. This would not be hard to do, and it would abundantly reward you in the facts it would bring out.

COVERING CAPACITY OF CALCIMINE. Careful shop records give the following data regarding the covering capacity of calcimine on the principal surfaces usually coated.

One gallon of calcimine will cover 270 square feet on plaster, 180 square feet on brickwork, and 225 square feet on wood.

COVERING CAPACITY. One pound of dry calcimine will cover ,approximately, as follows:

Smooth painted boards.....	60 to 80 sq. feet
Smooth unpainted boards.....	50. to 75 sq. feet
Rough unpainted boards.....	25 to 40 sq. feet
Soft unpainted brick.....	25 to 40 sq. feet
Hard unfinished brick.....	40 to 65 sq. feet
Stone	25 to 40 sq. feet

SPACE ONE MAN WILL COAT IN ONE HOUR. Using a five-inch calcimine brush an average workman will coat, in one average working hour, 22 square yards of rough wall, 38 square yards of smooth wall, 20 square yards of brick wall, flat surface, bench or floor, 40 square yards, ceiling, from step ladder, 25 square yards.

LIQUID BRONZE. The spreading capacity of any liquid must depend on the thinness of the fluid, and hence a bronze paint thinned with turpentine or benzine, and containing also some varnish, as a binder, will cover more surface than one mixed with banana liquid. The former will cover about 800 square feet, while the latter will cover about 100 square feet less. This for an ordinary smooth surface.

BRONZE POWDER. One ounce of bronze powder will cover about 25 square feet of average surface, one that is not absorptive.

The paint material required for an average dwelling house, excluding glass, will be from 20 to 30 per cent. of the cost of the painting, according to an expert. The difference between the cost of the very best materials and the poor ones is so slight that, excepting perhaps in the case of a very large contract, it does not pay to use the latter; reputation is a valuable asset, and hence worth keeping.

The cost of materials on a job is low as regards sandpaper, yet we know of one big job where it was the largest cost item next to varnish.

It is a mistake to put on prices, rather than taking off quantities.

WHITE LEAD PAINT. To ascertain the amount of such paint required to cover a given surface, on wood, divide the number of square feet by 200, which will give the number of gallons required for two-coat work. The usual estimate for ready-mixed paint is that a gallon will cover about 500 square feet, average surface on wood or smooth metal, one coat.

To ascertain the number of pounds of white lead in oil, as it is in the keg, before thinning, required to cover a certain area of square feet, divide the area by 18, which will give the amount of lead required for doing a three-coat job.

It should be borne in mind that all estimates are simply approximate, surface conditions and thinning of paint entering into the problem.

PAINTING OVER CEMENT.—A master painter did painting over cement plaster, over hollow tile walls, interior, and kept a careful record of the amount of material required, finding that the same used per coat was as follows:

	1st Coat	2d Coat	3d Coat	Total
	Lbs.	Lbs.	Lbs.	Lbs.
Ochre	299.6	66.0	.....	365.6
Lead	599.5	584.5	602.5	1,786.5
Oil	274.1	60.0	40.3	374.5
Turps .....	.....	60.0	60.5	120.5
Drier	4.8	1.5	1.4	7.7
Color .....	.....	7.0	22.3	29.3
Totals	1,178.0	779.0	641.5	2,684.0
Gallons	64.5	34.0	29.7	128.2
Weight per gal....	18.25	23.0	24.5	.....

Walls plastered over concrete—First coat, 328.5 square feet; second coat, 552.1 square feet; third coat, 664 square feet covered per gallon.

Walls plastered over hollow tiles—First coat, 240.9 square feet; second coat, 501.4 square feet; third coat, 644.3 square feet covered per gallon.

Varnish—First coat, 43.75 gallons on walls and ceiling.

Some turpentine was used on the second coat, but not on the first coat.

COVERING CAPACITY OF FILLERS.—How much surface will liquid filler cover? I should say that, taking an ordinary quality of liquid filler, reduced to the average, a pint will cover eight square yards, one coat; or one gallon to 64 square yards of average surface. At \$1.50 per gallon, the cost per square yard would be practically 2 1/3 cents.

PAINTING BRIDGE WORK.—A contractor made the following estimate from a six-span bridge he painted. Getting an area of the work he made a very careful estimate.

Red lead	0.4	lbs.	
Lampblack in oil.....	0.0133	lbs.	
Boiled linseed oil.....	0.0233	gals.	Materials,
Japan	0.0033	gals.	\$.0458 per
Turpentine	0.0013	gals.	sq. yd.
Brushes.....	0.45	cts.	
Labor, \$.0788 per sq. yd.			

Each span was 54 feet, and two coats of red lead paint were applied. Each deck plate girder took 600 lbs. red lead, 20 lbs. lampblack in oil, 50 gals. boiled linseed oil, 5 gals. japan, 2 gals. turpentine, and \$118.30 for labor, equalling \$.5775 per lineal foot or .088c. per lb.

A prominent firm of contractors give the following estimate for structural iron work: For heavy railroad bridge work they estimate that .40 of a gallon will do two coats, arriving at the estimate in this way: The first coat requires .24 of a gallon, and the second coat

.16 of a gallon, making in all .40 of a gallon to a ton. For light highway bridges they figure that it takes .70 of a gallon for two coats, that is, .40 for the first coat, and .30 for the second coat, amounting to .70 for the two coats. They figure to paint a heavy railroad bridge three coats requires approximately .50 of a gallon—.24 for the first coat, .16 for the second, and .12 for the third coat. For light highway bridges they figure that it will require .80 of a gallon for three coats, as follows: .35 for the first coat, .25 for the second coat, and .20 for the third coat. As an illustration of the above table, take a light structure containing 600 tons of metal to be painted with three coats. It requires .80 of a gallon to coat each ton of this iron three coats. Therefore, 600 tons times .80 gallons equals 480 gallons for three coats. The above figures are made in connection with the use of Dixon's Silica-Graphite Paint, or a paint which will cover an equal amount of surface, and are approximate. They are, however, close enough to enable us to figure accurately to a reasonable degree.

GASOLINE.—It is rather difficult to estimate what amount of gasoline will be required for burning off old paint, etc., much depending on the kind of torch used, also on the workman, and character of the job. We might make an approximate estimate of one gallon for 600 square feet of old paint surface. But the estimate is mostly a guess.

PAINT.—Paint varies so much in composition, both as regards constituents and thinning, that it is hard to estimate closely. A gallon of average paint may cover over 300 square feet of average surface, two coats. There is a great difference in the covering capacity of different pigments, and this must be taken into account. See under head of **WHITE LEAD PAINT**.

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